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No. 27

*Midland Railway 4–4–0 No. 450 at the head of a down express passenger train, approaching King's Norton on 2nd August 1921. When this picture was taken, the locomotive was in its H boiler rebuilt condition, which I think is rather attractive and gives the locomotive an 'Edwardian' look. The story of alterations at King's Norton is a subject that I hope to feature in a future edition of* Midland Record. CTY. GEORGE MAY

# EDITORIAL

This edition is rather dominated by an article about the '1528' class of 0–4–0T engines and I thought it would be useful to explain why we have devoted so much space to this subject. Almost eleven years ago, Dieter Hopkin, at that time Head of Department Library & Archive Collections, asked me if I could help to sort and list the Derby collection of locomotive drawings held at the National Railway Museum. My response was yes, but could the team include Fred James, who had been employed at the Derby drawing office.

Thus we began a task that took several years to complete, but it did not take me too long to realise that if a way could be found to make this material available, then it would fulfil many needs, not least the public interpretation of what had been saved for future generations. Readers whose collection of *Midland Records* includes No. 11, will be able to refer to my editorial that explained our plans for both the Midland and LMS series of locomotive drawing books. We also included a trial article about the '1121' Class of 0–6–0 Goods Tank Engines. About the time we were finalising the arrangements with the NRM, our mutual friend David Hunt asked if he could become involved and following the publication of the trial article, the team was structured along these lines – Fred would be responsible for drawings, I would look after the pictures and David would be in charge of the text. It worked very well and, as Series Editor, David is the project leader. Although the original team has produced all the Midland titles, the *LMS Locomotive Profiles* have seen others involved, in particular John Jennison, whose contribution to that series has been immense.

We planned to feature the '1528' Class within the *Midland Engines* series, but for reasons explained in the article, it has been decided to change the emphasis, and the 'book' has been restructured by David Hunt for use in this edition. Recently, when talking to a member of the supply side of the model railway hobby, he said 'One of those books is all you need to produce an accurate model – they are invaluable'. In many ways his remarks confirmed what we have tried to achieve. However, I will leave it to David to comment further at page 8. I should point out that for production reasons, this edition has an additional six pages, at no extra cost – a bonus for our readers!

*Bob Essery*

# MIDLAND RECORD

Editor: BOB ESSERY

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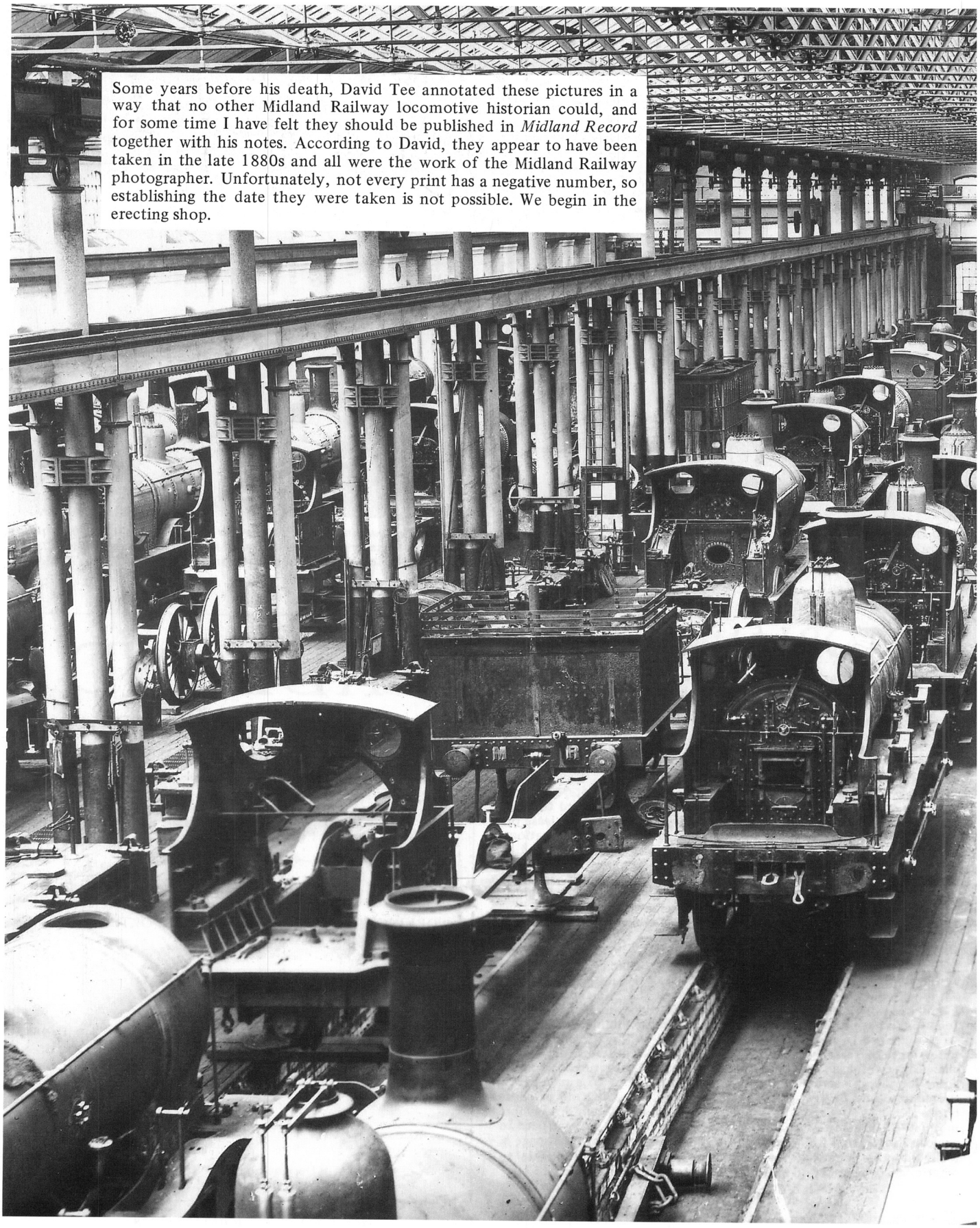
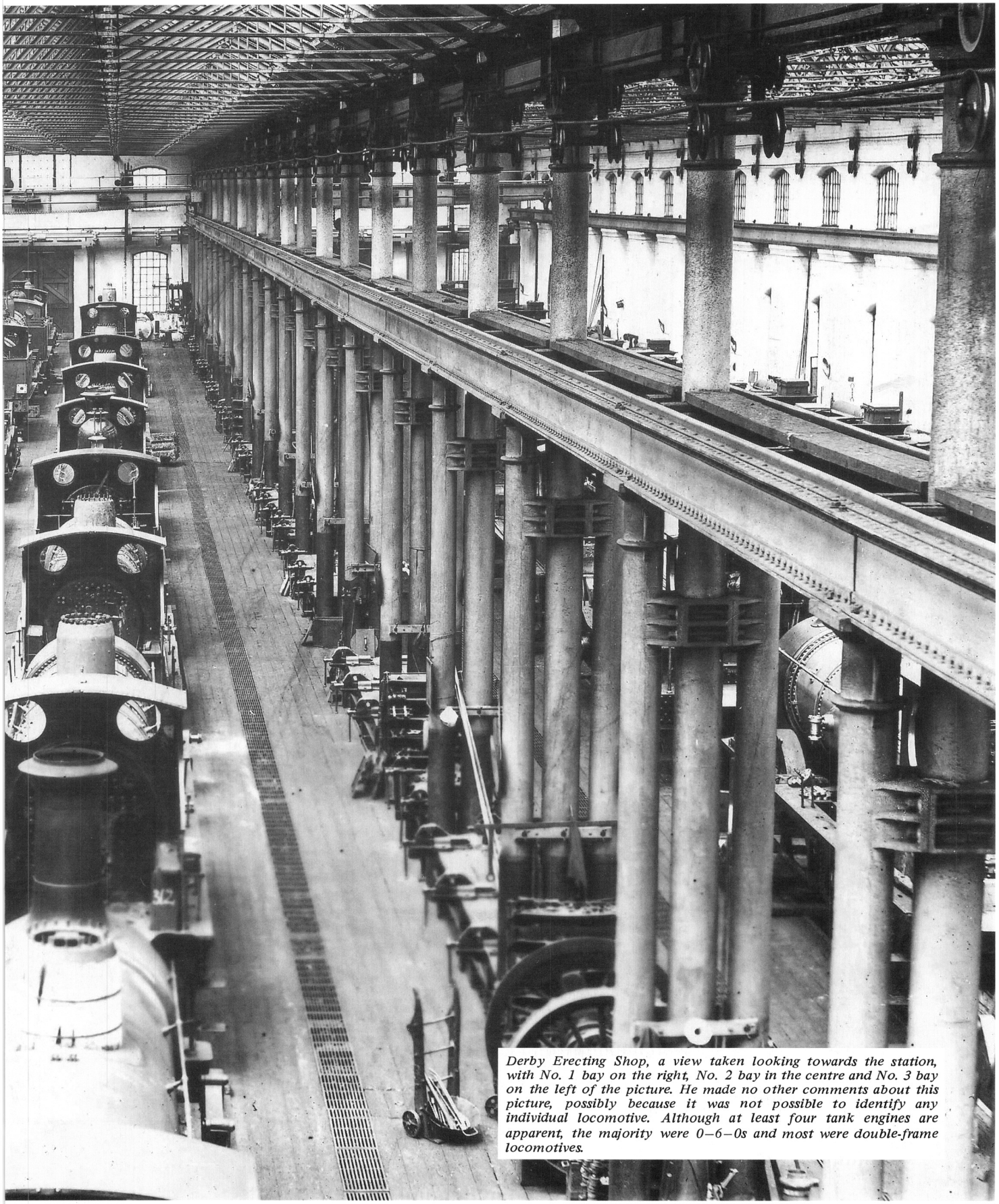
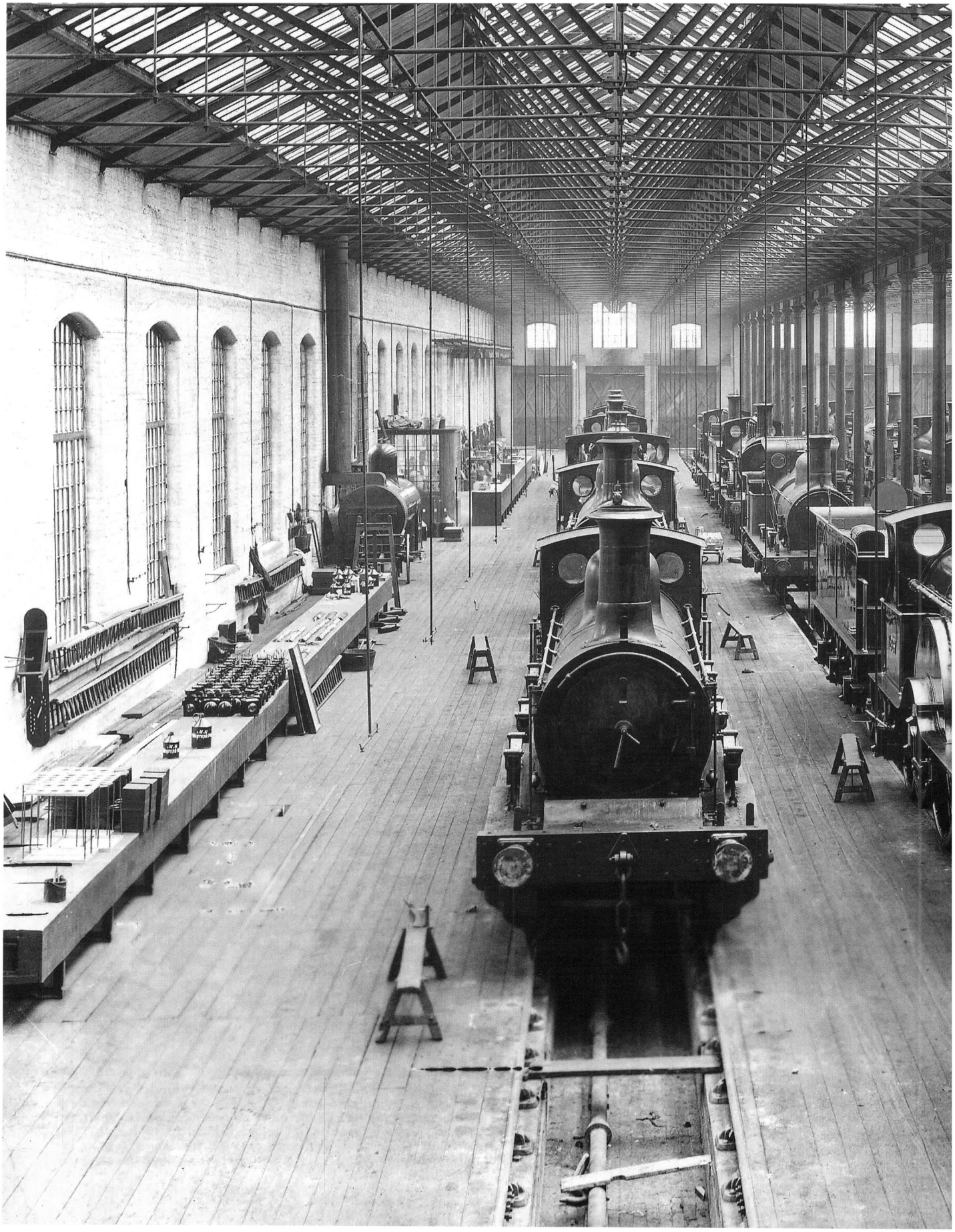


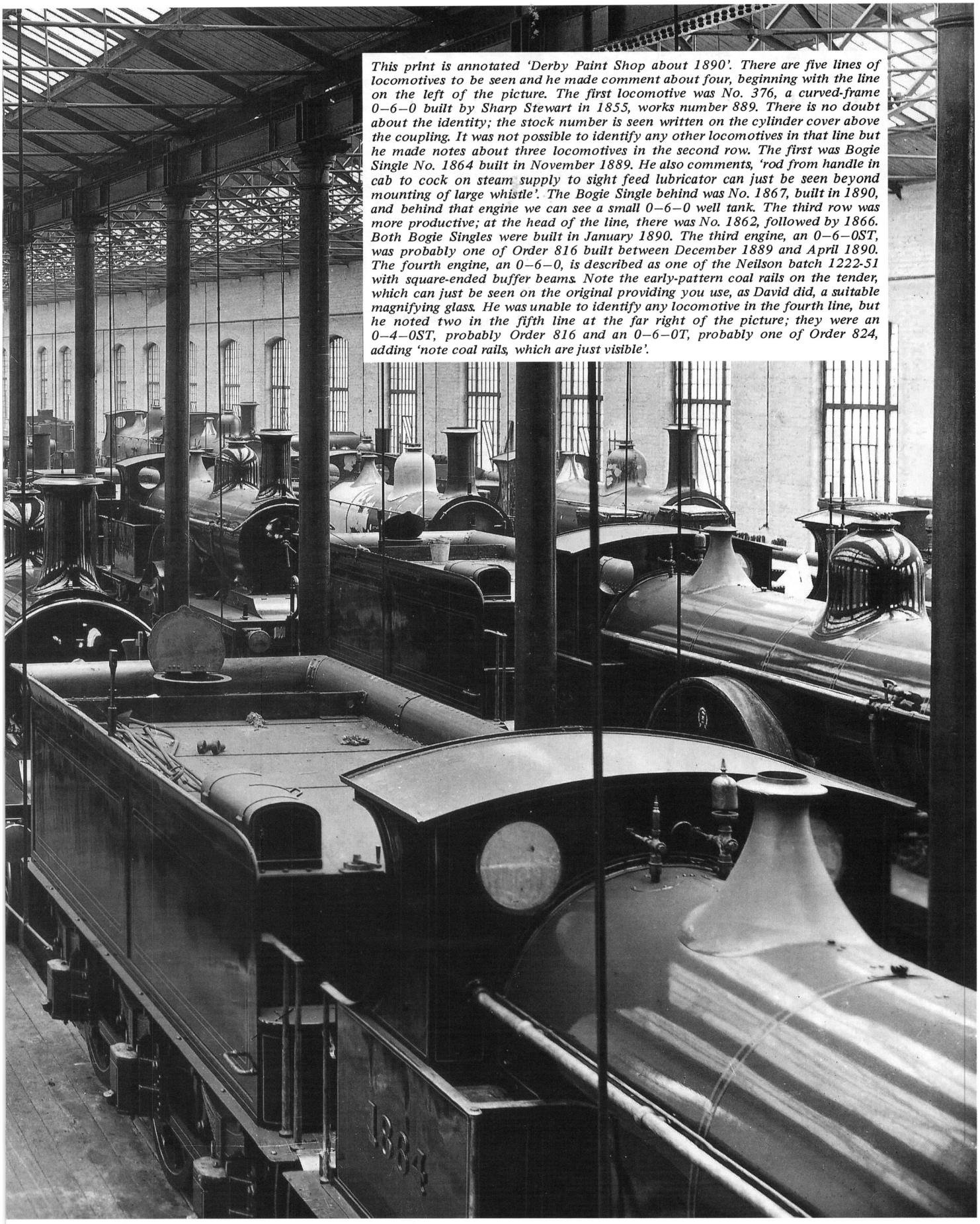
Some years before his death, David Tee annotated these pictures in a way that no other Midland Railway locomotive historian could, and for some time I have felt they should be published in *Midland Record* together with his notes. According to David, they appear to have been taken in the late 1880s and all were the work of the Midland Railway photographer. Unfortunately, not every print has a negative number, so establishing the date they were taken is not possible. We begin in the erecting shop.

# DERBY WORKS OFFICIAL PHOTOGRAPHS

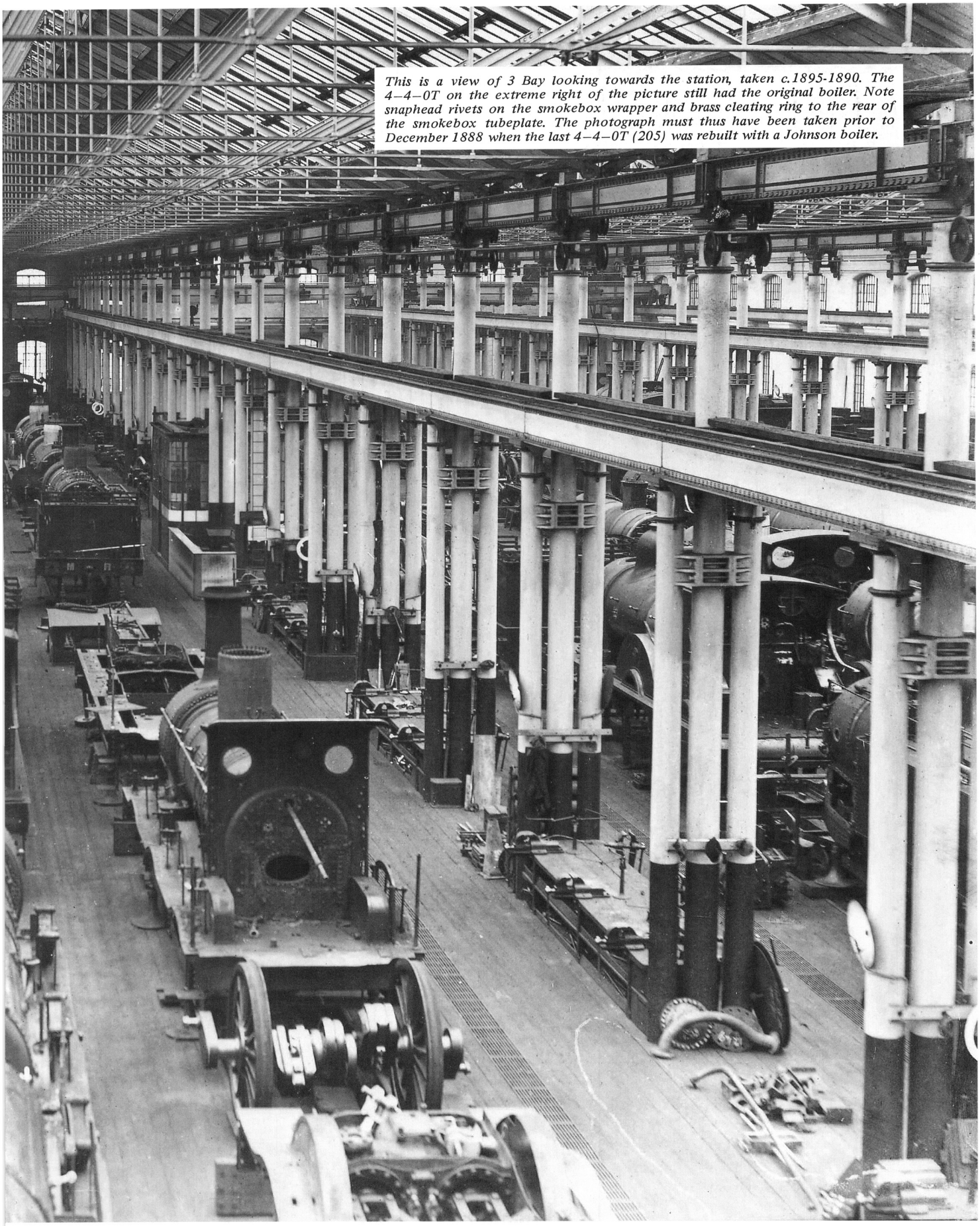


*Derby Erecting Shop, a view taken looking towards the station, with No. 1 bay on the right, No. 2 bay in the centre and No. 3 bay on the left of the picture. He made no other comments about this picture, possibly because it was not possible to identify any individual locomotive. Although at least four tank engines are apparent, the majority were 0–6–0s and most were double-frame locomotives.*



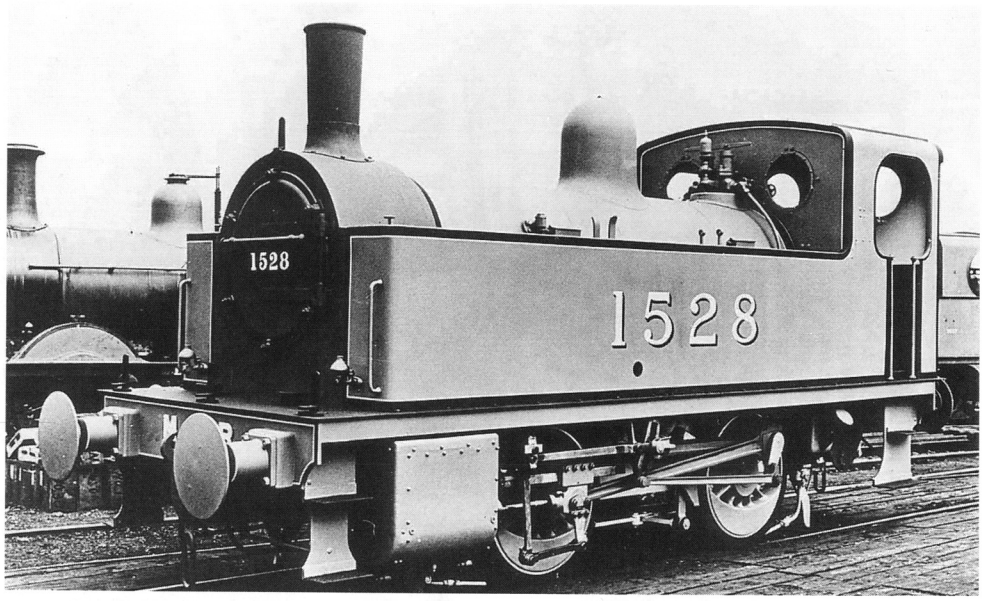



*This print is annotated 'Derby Paint Shop about 1890'. There are five lines of locomotives to be seen and he made comment about four, beginning with the line on the left of the picture. The first locomotive was No. 376, a curved-frame 0–6–0 built by Sharp Stewart in 1855, works number 889. There is no doubt about the identity; the stock number is seen written on the cylinder cover above the coupling. It was not possible to identify any other locomotives in that line but he made notes about three locomotives in the second row. The first was Bogie Single No. 1864 built in November 1889. He also comments, 'rod from handle in cab to cock on steam supply to sight feed lubricator can just be seen beyond mounting of large whistle'. The Bogie Single behind was No. 1867, built in 1890, and behind that engine we can see a small 0–6–0 well tank. The third row was more productive; at the head of the line, there was No. 1862, followed by 1866. Both Bogie Singles were built in January 1890. The third engine, an 0–6–0ST, was probably one of Order 816 built between December 1889 and April 1890. The fourth engine, an 0–6–0, is described as one of the Neilson batch 1222-51 with square-ended buffer beams. Note the early-pattern coal rails on the tender, which can just be seen on the original providing you use, as David did, a suitable magnifying glass. He was unable to identify any locomotive in the fourth line, but he noted two in the fifth line at the far right of the picture; they were an 0–4–0ST, probably Order 816 and an 0–6–0T, probably one of Order 824, adding 'note coal rails, which are just visible'.*

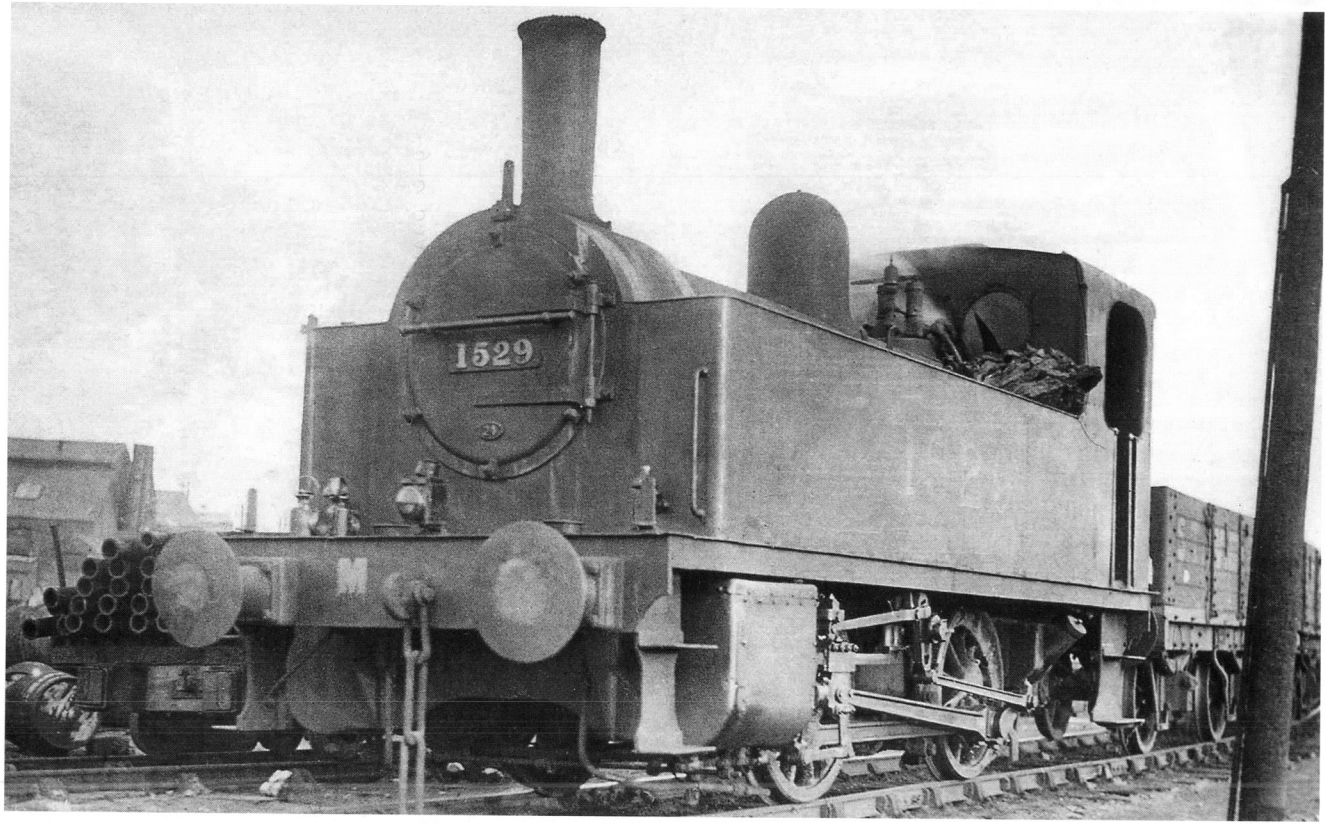


*This is a view of 3 Bay looking towards the station, taken c.1895-1890. The 4–4–0T on the extreme right of the picture still had the original boiler. Note snaphead rivets on the smokebox wrapper and brass cleating ring to the rear of the smokebox tubeplate. The photograph must thus have been taken prior to December 1888 when the last 4–4–0T (205) was rebuilt with a Johnson boiler.*

*Continued on page 94*



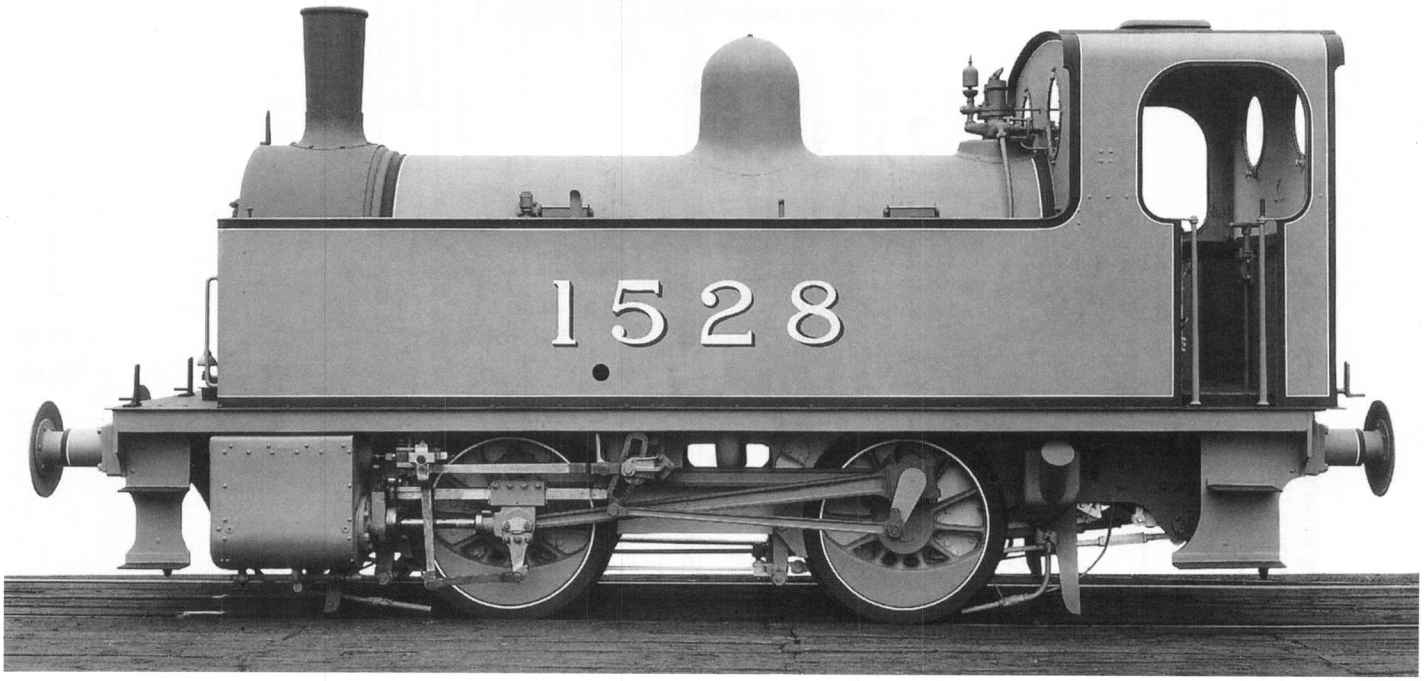

*No. 1528 when first built and in photographic grey showing front end detail. The smokebox door was the original, flat type with narrow seating ring and fasteners protruding beyond the edge. Note the 2¾in thick packing between buffer casings and buffer beam, a feature that was being generally introduced to Midland locomotives at the time the first '1528s' were built.* AUTHOR'S COLLECTION




*By the time 1529 was photographed at Staveley it had been fitted with a wide smokebox door seating ring but retained its original, flat door. It had also acquired a 24 (Staveley) shed plate and appears to have been painted black.*
COLLECTION R. J. ESSERY

bars. The firebox was 4ft 0in long and 3ft 10in wide at the foundation ring, and the barrel, which was 10ft 8⅝in between tubeplates and 3ft 8in inside diameter at the second ring, contained 141 copper tubes of 1¾in diameter widened to 1⅞in at the smokebox tubeplate. This was normal Midland practice to allow for easy withdrawal of the tubes when they had scale on the outside. The two rings were each 5ft 6⅜in long, the first throughout its circumference and the second over the top half, with a 2½in lap at the join and were riveted together. The lower half of the second ring was reduced in length by 9in where it met the outer throatplate. Similarly, the 3ft 6½in long firebox wrapper overlapped the second ring by 3¾in and the flanged doorplate, or firebox backplate, by 2½in and was riveted to both.[4] The outer throatplate was flanged into the wrapper by 2½in and over the barrel by the same amount, depth of the flange at the barrel being 4½in. All plates were steel, the barrel, firebox wrapper and doorplate being ½in thick and the outer throatplate ⅝in. The inner firebox was made from ½in thick copper with a ⅝in thick copper throatplate. The fire hole was formed from a forged ring onto which inner backplate and outer doorplate were riveted. Stays followed the normal Derby practice of the day with full-length through stays between tubeplate and firebox doorplate, barrel stays from tubeplate to brackets at the rear of the first ring, palm stays from outer throatplate to the lower part of the barrel, gusset stays from the top of the firebox wrapper to the doorplate, and direct stays between inner and outer firebox. The roof girders were not stayed directly to the outer firebox but were attached to links, or slings, pinned to brackets at the top. These were intended to give more flexibility to the stays and prevent failures due to the high thermal stresses set up when the firebox heated and cooled. Total heating surface was 764 sq ft, of which 64 sq ft was provided by the firebox. Grate area was 10.5 sq ft.

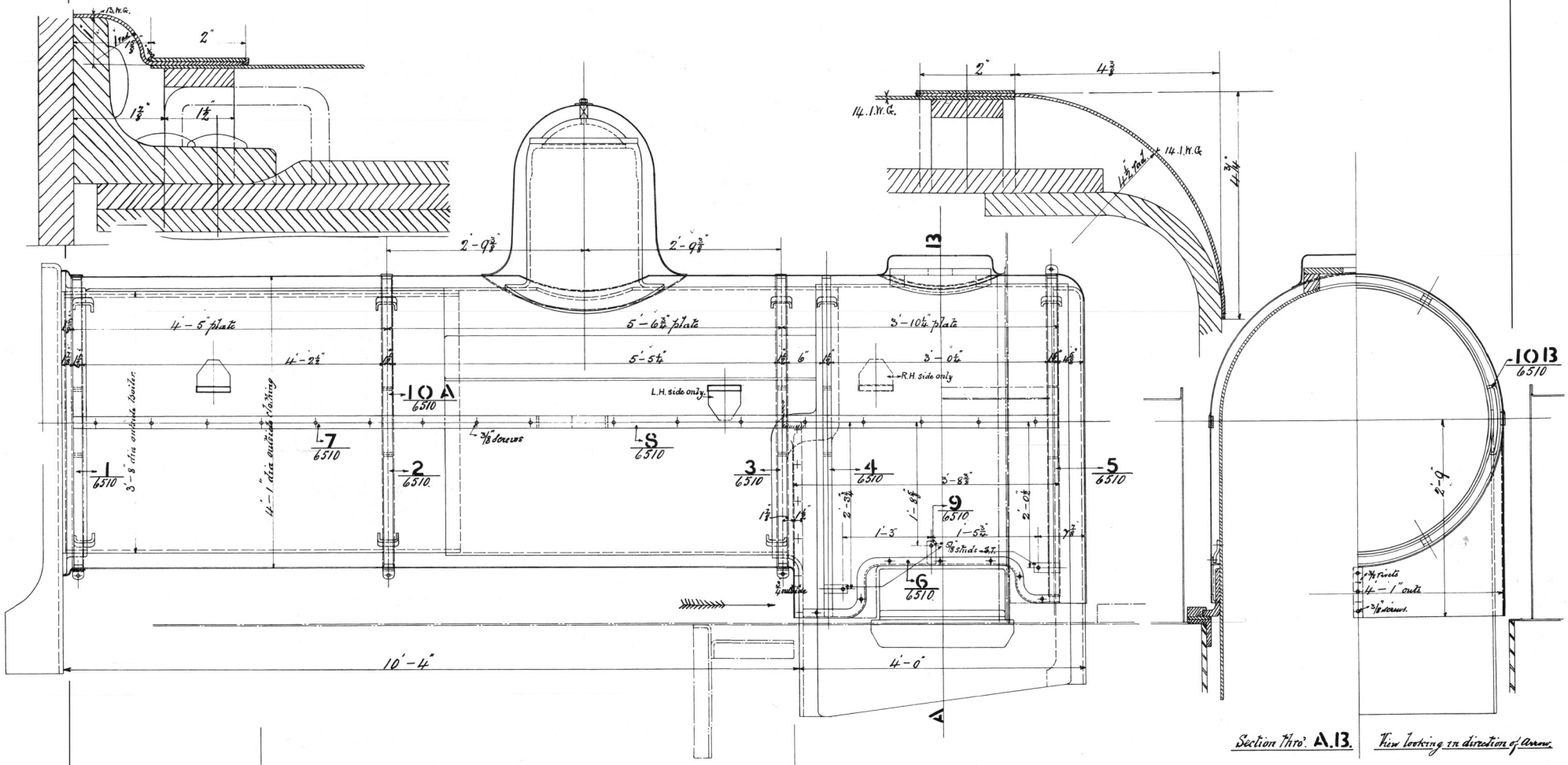
Two 160 psi, 2¼in diameter safety valves and a short Johnson-style whistle were mounted on a common steam manifold positioned on the firebox manhole. From the same manifold, the injector steam pipes led around each side of the firebox, between the boiler and tanks, and into two Gresham & Craven No. 6 injectors positioned at the tops of the frames just ahead of the trailing wheels. Clacks were on the front ring of the boiler just above the tank tops. This was an unusual arrangement for Midland boilers made at this time as most had the clacks on the firebox backplate. In BR days the routeing of the injector steam

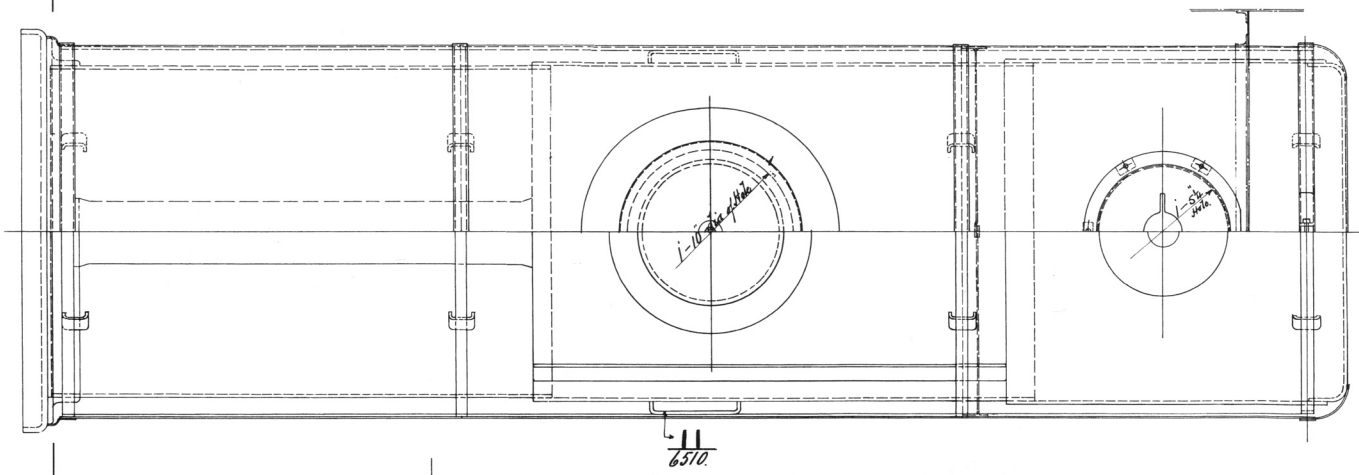



*The first of the Deeley 0–4–0 tank engines was photographed in works grey in 1907. The picture illustrates clearly the paint scheme in which the first five locomotives were initially turned out, with a few exceptions such as the wheel centres, rear cylinder cover, frames, fluting on rods, sandboxes and footsteps, all of which were black. Other points worthy of note are the single slide bars, details of the valve gear and pipework, and the oil boxes on the tank top. Fire-iron supports were mounted on top of the left-hand tank and the large buffer heads, necessary to avoid buffer locking when propelling stock around tight curves, were riveted onto standard-sized buffers. The fillers for the front sandboxes were on the platform in front of the smokebox and Furness lubricators were mounted on the tank front plate. The chimney was the original type fitted to all the locomotives when they were built. Note the valve spindle guide and radius rod support, which were altered on the later engines. The pillar handrails at the gangway were in line with the cab sides and supported at the tops by extensions of the beading whilst the rear edges of the cab footstep supports were straight below the top steps.* NATIONAL RAILWAY MUSEUM

## 05-6509 — Clothing arrangement

*Again initialled by Anderson in 1906, this shows the fairly standard Midland clothing arrangement for the J2 boiler and firebox. Note the different positions of the rear tank stays on the left- and right-hand sides of the boiler occasioned by the coal bunker on the left.*





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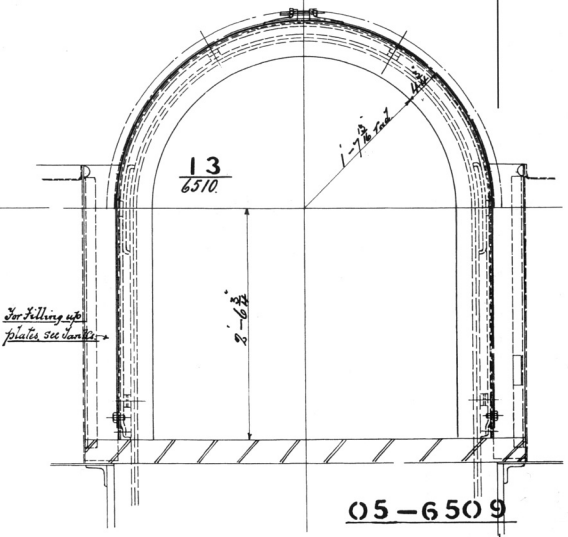
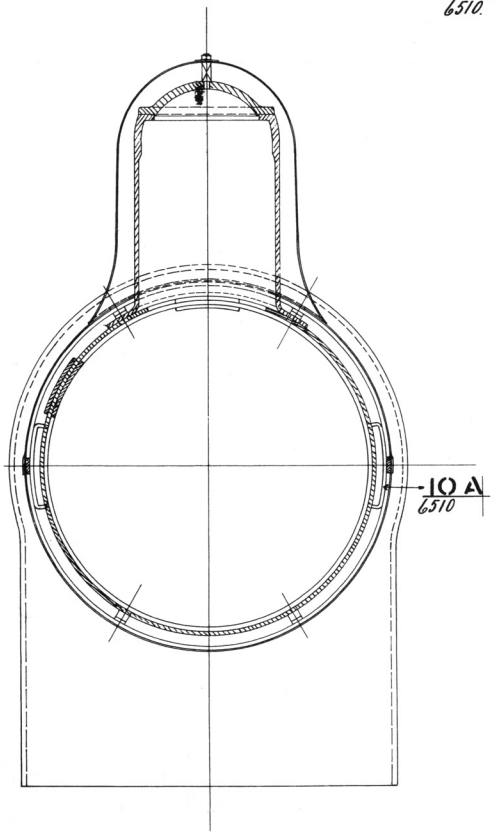



05–6509

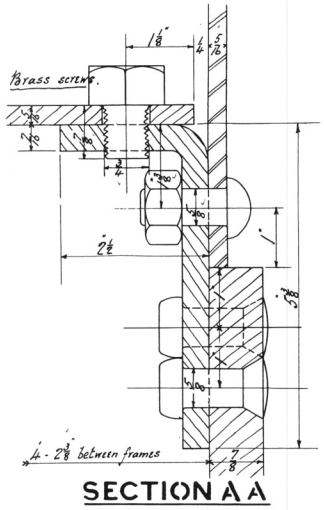


10 A
6510

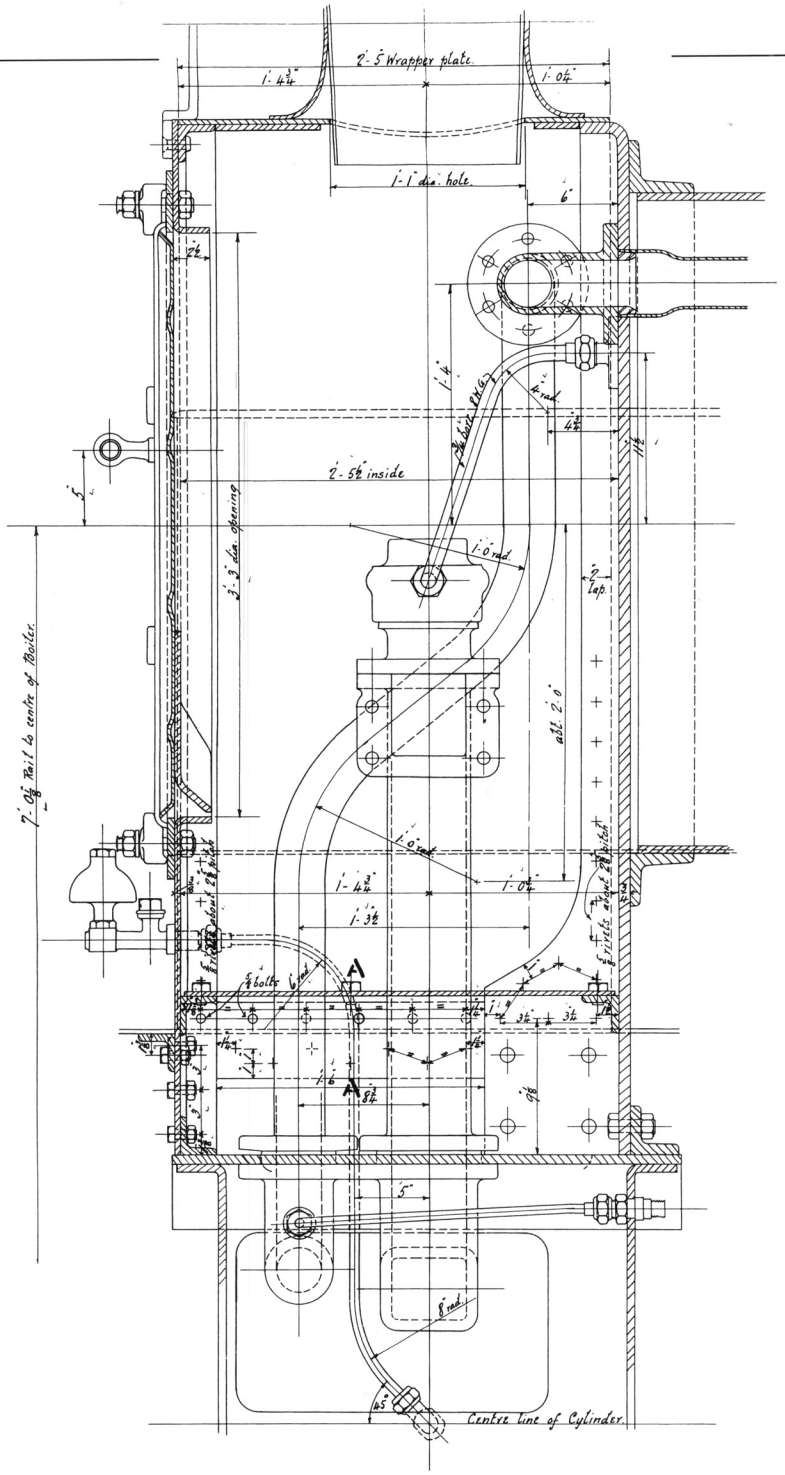
| DETAIL DRAWINGS DESCRIPTION | DRAWING Nº |
|---|---|
| Clothing Details | 05-6510 |
| Dome Casing | 06-6574 |
| Safety Valve casing | 05-6468 |
| Lugs for Strap Ends | 3-444 |
| | |
| | |

## 05-6488 — Smokebox arrangement

*This drawing, also initialled by J. E. Anderson in 1906, shows the smokebox with the original type of flat door and narrow seating ring, which the fastenings overlapped. Since the engines had neither superheaters nor ejectors, the arrangement was comparatively simple, the only fixtures intruding into the smokebox being the steam pipes branching off the main steam pipe and leading round the sides to the cylinders, the exhausts leading up to a Y junction just below the blast pipe, and the blower pipe entering from the left rear to the blower ring around the blast pipe nozzle. There is a note on the drawing that 'all rivets where they are seen to be countersunk flush outside smokebox'. Note the Furness lubricators shown attached to the fronts of the tanks.*




SECTION A A




| Detail Drawings Description. | Drawing Nº |
|---|---|
| Smokebox Tubeplate. | 05-6441. |
| Steam pipe tee and flange to cyl$^{rs}$. | 05-6450. |
| Blast pipe. | 05-6479. |
| Blast pipe cap + blower connection to tubeplate | 05-6485. |
| Chimney. | 05-6486. |
| Smokebox Door. | 05-6487. |
| Furness Lubricator details. | 05-6268. |
| Sight Feed Lub$^{r}$ unions | 06-6563. |
| Lampholder. | 01-4976. |
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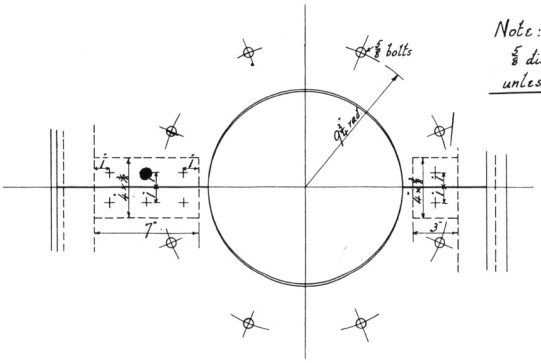
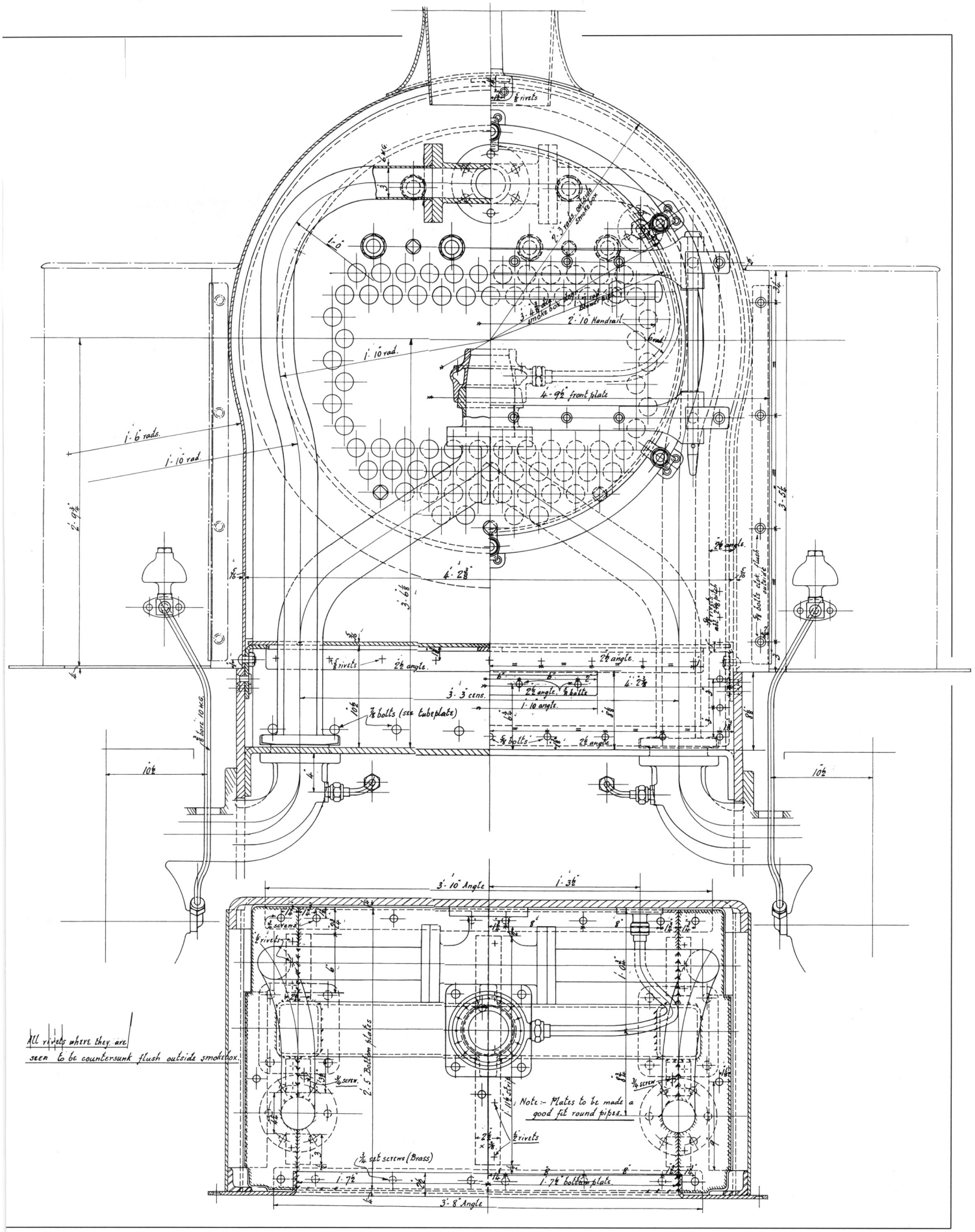
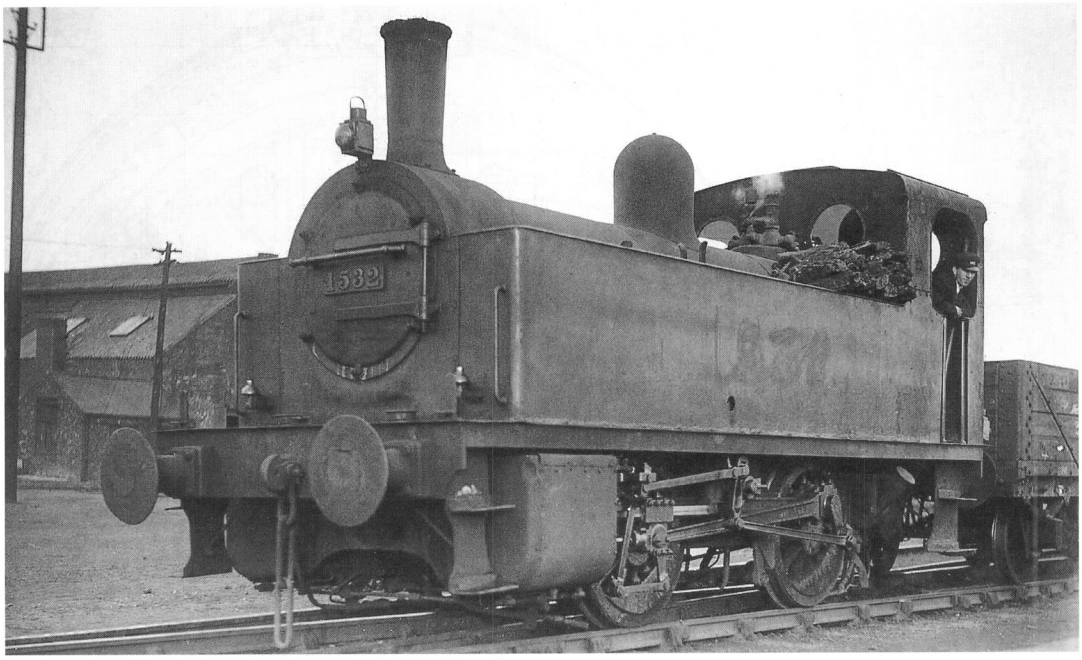



Note:- All rivets to be ⅝ dia. (finished) unless otherwise stated.



2-10 Handrail
1'-10 rad.
4-9½ front plate
1'-6 rads.
1'-10 rad.
2½ angle.
3-3 cens.
1-10 angle.
⅞ bolts (see tubeplate)
3'-10 Angle
1'-3½
2-5 Bottom plates
¾ set screws (Brass)
1'-7½ bottom plate
3'-8 Angle
All rivets where they are seen to be countersunk flush outside smokebox.
Note:- Plates to be made a good fit round pipes.




*A distinctly dirty 1532 is seen here with a later-pattern dished smokebox door and wide seating ring but still with Furness lubricators on the tank fronts and short buffer housings on thick packing pieces.*

COLLECTION
D. F. TEE

pipes was slightly different on some engines, as shown in the accompanying photographs. The regulator was mounted in a tall cast-iron dome, the cover of which stood 2ft 4$\frac{7}{16}$in above the boiler clothing.

Lagging was silicate cotton covered in thin zinc plates screwed onto hoops or 'crinolines' that were fixed to stools and longitudinal bars, the whole lot surrounded by 14 iwg steel clothing plates. Clothing bands were 1½in wide and flanged beneath the boiler, only the rear band at the firebox backplate being flanged above. The fairing over the angle ring joining boiler and smokebox was 13 iwg copper held in place by the front clothing band, and outside diameter of the clothing was 4ft 1in.

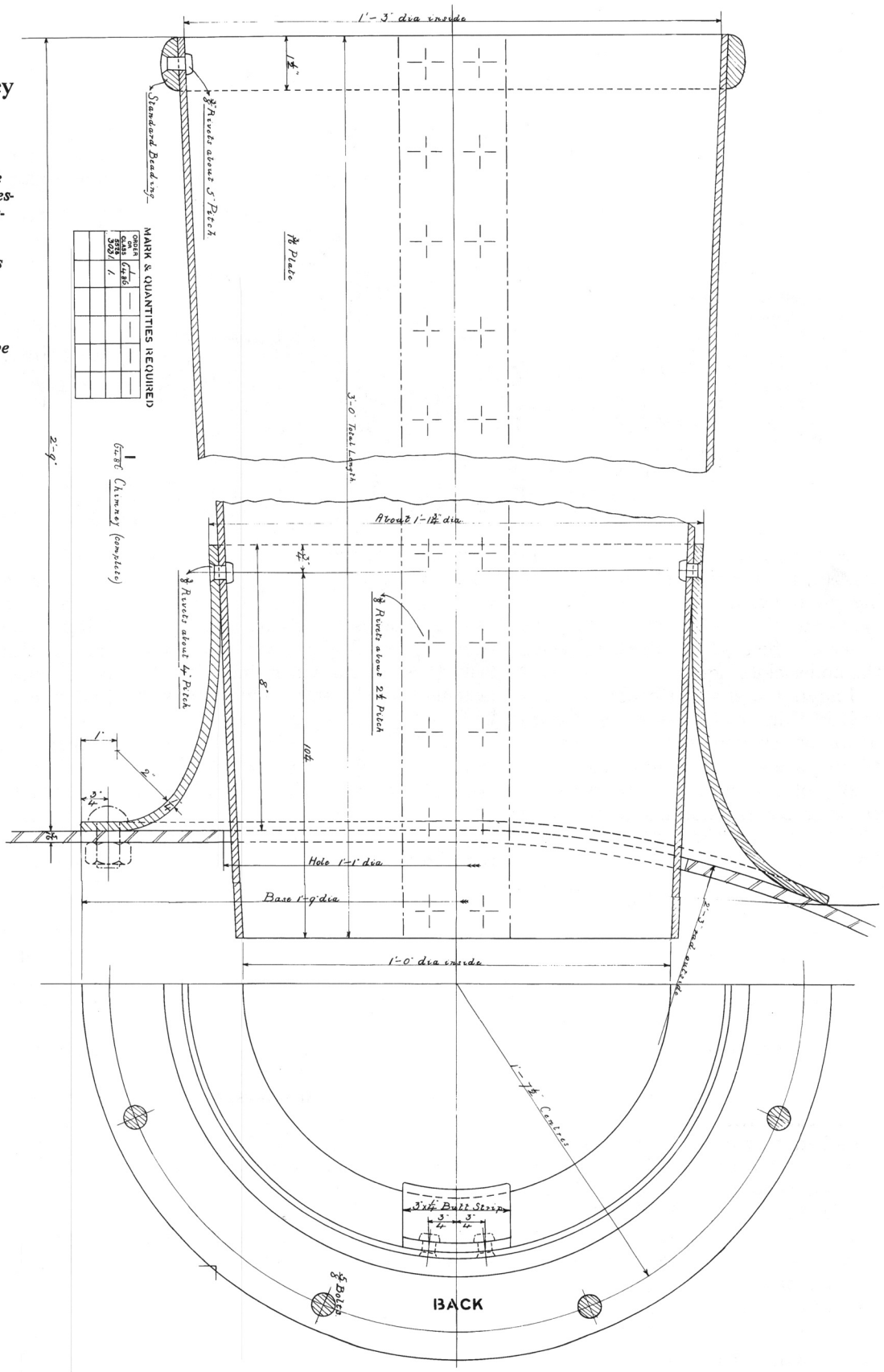
Outside length of the smokebox was 2ft 6$\frac{5}{8}$in with a $\frac{3}{8}$in thick front plate and 2ft 5in long, $\frac{5}{16}$in thick wrapper into which the $\frac{3}{4}$in thick steel tubeplate was flanged and attached to the boiler by an angle ring. Rivet heads on the outside of the smokebox were flush on the first five engines when built. On Nos. 1533–1537, however, snap-head rivets were used, as they were during subsequent repairs to 1528–1532. The first five engines had smokebox doors of the second, flat Deeley type with strap hinges and a narrow seating ring, the six fasteners being mounted half on the ring and half on the smokebox front plate. The handrail, however, was straight and there was no grab handle on the right-hand side. They were soon modified to have a wider seating ring and/or the third type of Deeley door, which was dished and had a wider ring with the fasteners wholly on it. This type was fitted to 1533 *et seq* from new.

As built, each engine had a stovepipe chimney to drawing 05–6486. It was a 3ft long truncated cone 1ft 0in diameter at the base and 1ft 3in at the top, rolled from $\frac{3}{16}$in plate and butt joined at the rear using flush rivets. A ¼in thick cast-iron base 1ft 9in across and 8in high at its shortest point was flush riveted to it so that the rim was 2ft 9in above the smokebox. The base was bolted to the smokebox wrapper and 1½in beading was flush riveted around the rim, which was notionally 12ft 0⅛in above the rails. In late Midland or early LMS days, one-piece castings were introduced with the shape of the base altered slightly to have a sharper curve and the size of beading around the rim was increased, although the two did not necessarily go together. At or about the same time, snap-head rivets were sometimes used to attach the base to the chimney on earlier-pattern examples, although it would seem that some engines were repaired using flush rivets. In about the late 1930s and after, some locomotives had their chimneys replaced by ones with a slightly more pronounced taper and a base that appears to have been simply a curved, annular plate resembling a bent washer welded to the funnel, although I have no details of dimensions. A few of these chimneys had the original type of beading around the rim, but others had what appears to have been bent angle-iron attached with snap-head rivets. The latter looked particularly hideous. No. 1536 was fitted in about 1945 with a spark arrester but I have no details of why it was so treated or for how long it retained the fitting. The different chimney types are illustrated in the accompanying photographs.

A total of twenty boilers was built. After the original ten, the LMS made another five as replacements in 1927 followed by a spare in 1934 to enable boiler exchanges in keeping with the progressive system when engines were undergoing general repairs. Another two were made as replacements in 1947 and a final two were produced at Crewe in 1954. Only a couple of modifications, other than those already mentioned, were carried out to the boilers during the engines' lives. In 1936, it was decided that a system known as continuous blowdown would be fitted to all LMS locomotive boilers in England and Wales under the financial authority of NWO 3098. This system allowed a small amount of water to drain away whenever the regulator was open and

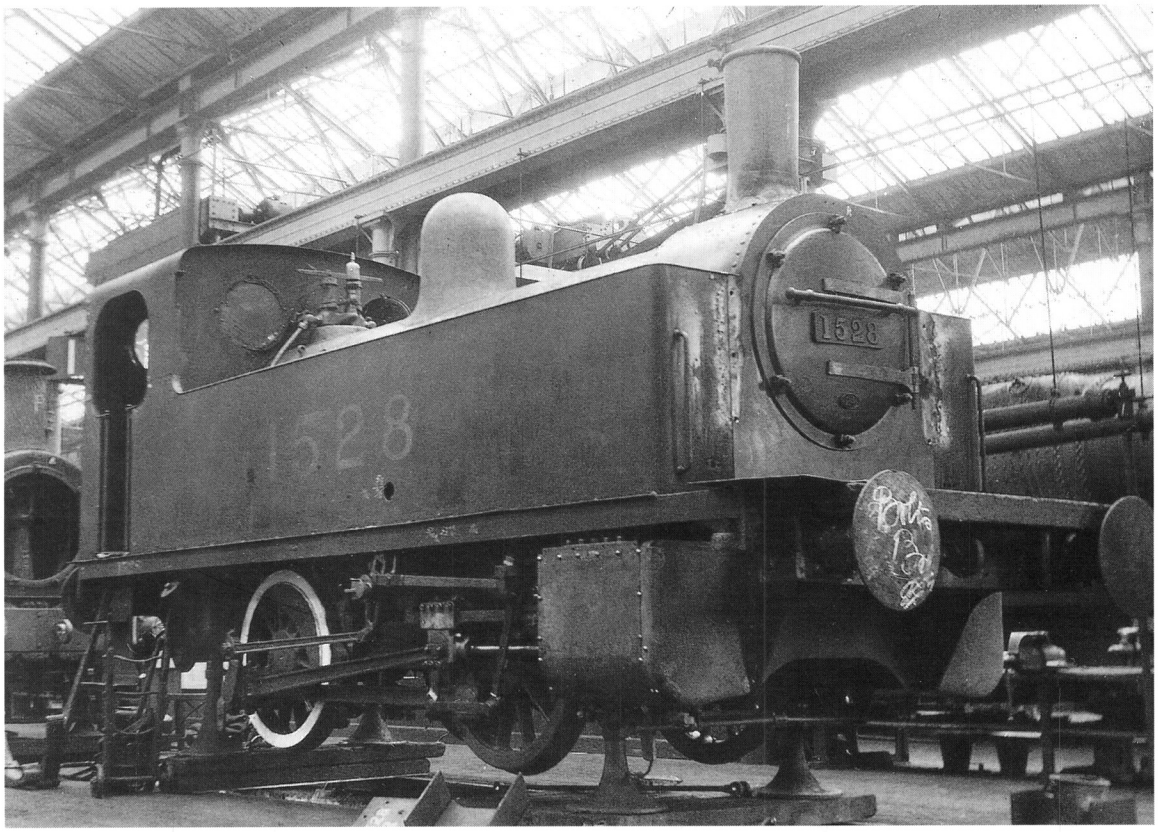
## 05-6486 — Chimney

*The original from which this drawing was reproduced is a full-size representation of the original chimneys fitted to all the engines when built. As described in the text, replacements in later days had differently-shaped bases and used snap-head rivets in some instances. The shape of the sheet metal funnel also differed in some late LMS and BR made chimneys but I have no dimensional details.*

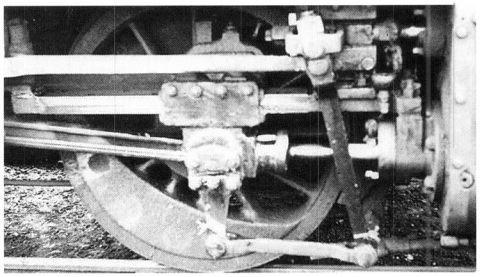


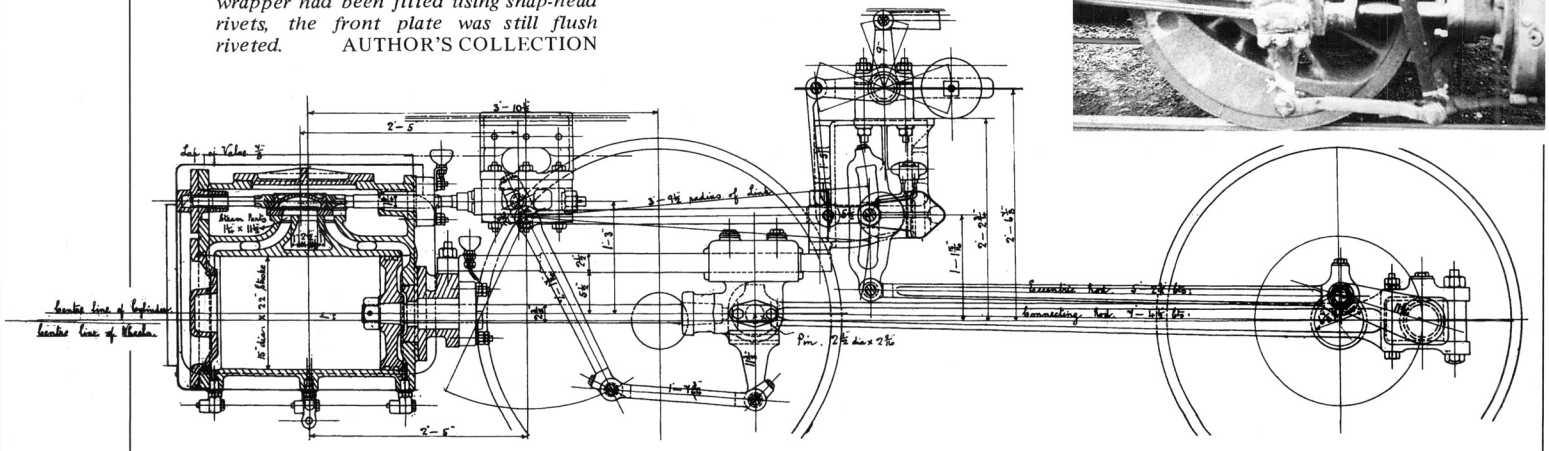
was designed to reduce the build-up of softening salts in the boiler. In tank engines, the drain was into the ashpan. It took a long time for the job to be completed and it was at least 1944 before all the J2 boilers were modified; in fact, it is possible that some were never altered. During and immediately after the Second World War, a copper shortage led to the authorisation under NWO 5864 for the fitting of steel in lieu of copper tubes but it is believed that the only engine affected was 1529 in October 1944.

As a footnote, it has been suggested to me that the use of J class boilers on the various 0–4–0s gave rise to the term 'Jocko' for a shunting engine. Ex-railwaymen have also said that they were sometime known as 'Jinties', a term later adopted by some enthusiasts for the class 3 tank




*This study of 1528 undergoing repairs at Derby shows the depth and shape of the plate between the frames at the front of the cylinders. By the time it was taken, the engine had received the later type of dished smokebox door with wide seating ring and although its smokebox wrapper had been fitted using snap-head rivets, the front plate was still flush riveted.* AUTHOR'S COLLECTION



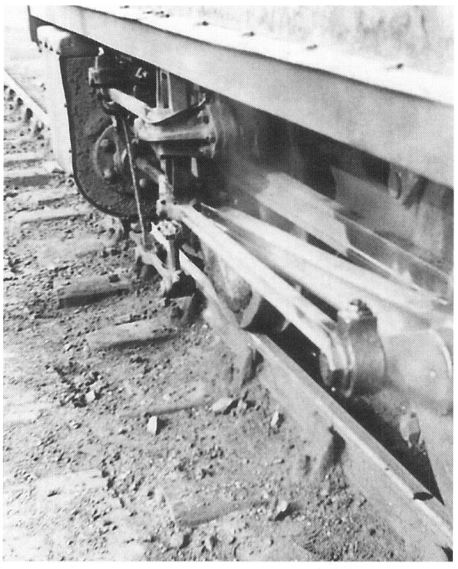



*This drawing shows the cylinders, motion and valve gear of the later locomotives with fabricated valve spindle guides fixed to the frames. Although intended to replace the earlier pattern on Nos. 1528-1532, none of the engines was ever altered and it only featured on 1533-1537.*

engines, for the same reason. If any reader can add more information on this subject, I would be pleased to receive it.

### Cylinders and motion

Outside Walschaert's motion was a rarity on the Midland, the only other example being the lone 0–10–0 Lickey Banker, although the 2–8–0s built at Derby for the Somerset and Dorset joint line also had it. The obvious reason for its use on the '1528' Class was the full-length, full-depth side tanks, which would have made inspection and oiling of inside motion difficult to say the least. Even with cut-outs in the tank side plates, Deeley's '2000' class 0–6–4 passenger tanks were awkward in this respect. The tanks themselves were actually shallower at the front than the side plates suggested, so, had the plates been reduced to the size of the tanks, there could have been better access. It has been suggested by writers such as Ahrons, however, that there may have been another reason for the adoption of Walschaerts' gear for the little shunting tanks. Deeley was keen to maintain the impetus of improvement that Johnson had begun with his 'Belpaires' and Compounds by modernising the Midland's locomotive fleet whilst at the same time seeking to reduce running costs. Walschaert's valve gear had a potential advantage over the Midland's standard Stephenson link motion in that it only required one return crank and rod per valve, rather than needing two eccentrics and two rods. Not only did this reduce the wear on moving parts but, helped by having the motion outside the wheels, it also made for greater ease of maintenance. It is possible, therefore, that the use of outside Walschaert's motion on the '1528' Class tank engines was in the nature of a trial to assess its practicalities before applying it to larger locomotives.[5] This, however, is only supposition.



*These photographs show the Walschaerts valve gear with the early type of valve spindle guide and crosshead fitted to the 1907 engines.* R. J. ESSERY

The valve gear was operated by a reversing lever having 3 notches either side of mid-gear equating roughly to 35%, 55% and 75% cut-off There was a visible difference between the two batches of locomotives in the motion arrangement. On the first five, the valve spindle guide was a single, slotted casting, fixed to the slidebar, in which the crosshead was visible. Nos. 1533–1537, however, had fabricated guides bracketed from the framing and the crosshead was enclosed, visible only through slots in the side. None of the earlier engines was modified to the later pattern, despite the fact that it had been designed in 1911 as a replacement for their slightly problematic arrangement and was supposed to have been retro-fitted. All the rods, links and pins were steel, rubbing faces and pins being hardened.

The 15in x 22in cast-iron outside cylinders had the steam chests above them with horizontally mounted slide valves having ⅞ in lap. Solid pistons were held on to tapered portions of the spindles by large nuts. They drove onto the trailing wheels via 7ft 4½in long, fluted steel connecting rods with half brasses and cotters at the crankpins. Cylinder lubrication was by a Roscoe sight feed displacement lubricator in the cab plus two later-pattern Furness lubricators with mushroom-shaped casings and oil vessels below. The latter were mounted on the tank front plates below the level of the tanks themselves. Furness lubricators had been introduced to the Midland by Johnson to maintain cylinder lubrication when the regulator was closed and there was no steam available to displace the oil. Several times their need was questioned and eventually, in the late 1920s, it was decided that they were an unnecessary complication. They were thus removed and had disappeared by about 1933. The single cast-steel slidebars were 2½in deep and 4in wide. Such slidebars were often said to be grit gatherers and, as a result, fell out of favour on some railways. I have not seen any reports of problems with slidebars on the '1528s' but the Midland didn't use them again. The steel crossheads had cast-in oil reservoirs.

### Frames

The 21ft 9in long steel frames were ⅞in thick and spaced 4ft 2⅜in apart. Lifeguards were ⅞in thick steel and all stretchers, stays and the fabricated drag box were made from ½in steel plate. Hornguides were cast steel with what were later known at Derby Works as 'Horwich hornstays' having horizontal pins through downward extensions of the castings. Suspension of the leading axleboxes was by 14 plate overhung leaf springs, the top plate being ½in thick and the others 7/16in. The trailing axleboxes were too close to the firebox to have the same suspension arrangement, so coil springs were placed either side of the horns acting on small equalising beams below the keeps. Lubrication of the hornguides and journals was from four oil boxes mounted on the tank tops, two just to the rear of the clacks for the leading axle and those for the trailing axle staggered because of the coal bunker at the rear of the left-hand tank. Three pipes led from each box, one to the top of the associated journal and one to each hornguide.

Buffer beams were 1in thick steel and flush riveted on all the engines as built, but later repairs were made with snap-head rivets. Because of the sharp curves over which the engines were to operate, there was a likelihood of buffer locking so the buffer heads were enlarged by riveting large, dished steel plates onto their faces. In 1905 some Midland engines had been fitted with cast-iron spacers between the packing of the buffer

casings and the beam so that the distance from the inside of the draw hook to the buffer faces should correspond with that on coaches and in January 1907 it was ordered that all locomotives should be so treated. The first five '1528s' were therefore built with short buffer casings on 2¾in thick cast-iron spacing blocks but the later examples had long casings with prominent collars and were mounted on one inch spacers. Later on, some early engines received long casings with thin spacers but there were also instances of later engines having short casings fitted on thick blocks. There were also examples of locomotives having mixed types, although, as far as I can tell, both casings on a particular buffer beam were always the same. As an example of the changes that went on, No. 1533 had long casings at the front and short ones at the hind end in 1946, but a short time after nationalisation they were the other way round.

**Wheels, brakes and sanding**

Wheels were cast-steel with 3ft 10in diameter tyres when new and were on a 7ft 6in wheelbase. They were statically balanced, all having crescent-shaped integrally-cast balance weights positioned opposite the crankpins and covering 2½ spaces either side of centre. As far as I am aware, none of the engines ever had any other type of wheel fitted. Coupling rods were fluted steel with half brasses and cotters, which was unusual for locomotives built in 1907 and the 1920s.

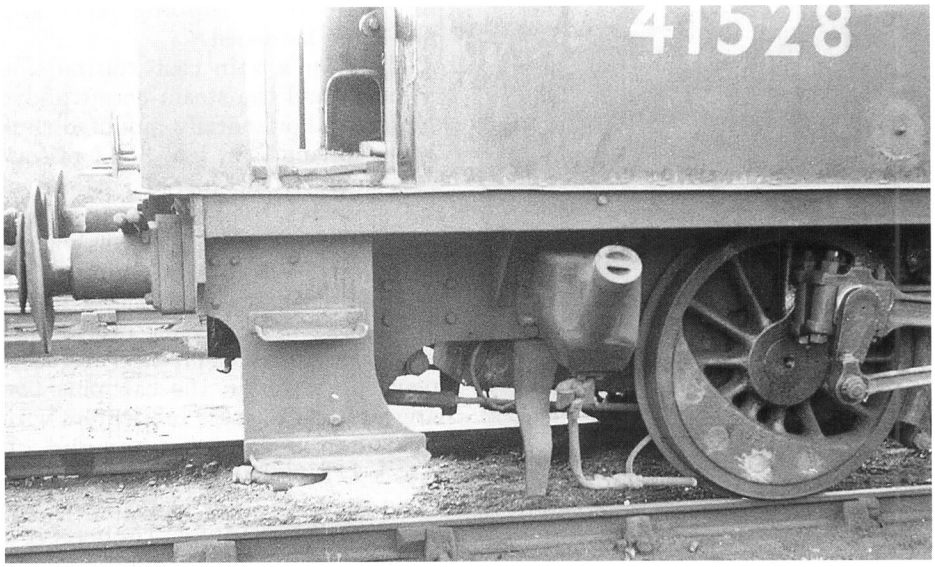
Unlike the Johnson 0–4–0STs, the '1528s' had steam sanding, which was commented on favourably in the railway press as being a boon to drivers working over sharply-curved and poorly-maintained track. It was applied to all four wheels, the sand pipes being ahead of the front wheels and behind the rear ones. Front cast-iron sandboxes were between the frames and below the platform forward of the cylinders, their fillers being above the platform just in front of the smokebox. Rear ones were outside the frames between the trailing wheels and the lifeguards with angled fillers just below the platform angles. The lids on the fillers originally had a knob on top but in BR days some were replaced with versions having grab handles cast in. Steam brakes were fitted with hangers ahead of all four wheels and were operated by two actuating cylinders under the cab floor immediately behind the firebox backplate. They could also be hand-operated using a standard at the rear of the cab to the inside of the left-hand toolbox. None of the engines was ever fitted with vacuum brakes.

**Platform, tanks, cab and bunker**

The underside of the 8ft 3in wide, ¼in thick steel plate platform was notionally 4ft 2⅛in above the rails. It was stiffened at the edges by 5in deep, 2½in wide angle-iron that was spaced 8ft 0½in over its outer faces and attached by ¾in bolts.

Width over the front and rear footsteps was also 8ft 3in. They were flush riveted to the support plates on Nos. 1528–1532 but those on 1533–1537 had snap-head rivets, which were also used during later repairs to the early engines. The cab footstep supports had different outlines on the two batches of engines. The early ones had a straight rear edge below the upper step so that the rear of the steps were in line and the front edge of the lower step was 9in ahead of the upper one. Later locomotives had the centres of the steps in line with a curved profile to both front and rear edges of the lower part of the support plate. As built, the footsteps were flat but in the 1930s the corners were bent up to give a slightly more secure footing. It was intended that the engines should receive new steps with turned-up ends but, as with most LMS pre-Grouping engines, it never happened.

The side tanks held 650 gallons of water, the two being joined by a 5½in balance pipe that passed through slots in the frames between the wheels. Although the front and side plates extended down to the platform along their full length, the bottom of each tank was raised a foot from a point just behind the expansion link with the outline clearly marked by a row of rivet heads on the later engines. There was a hole in each tank above the expansion link for access to the lifting links and the later engines also had cut-outs in the platform angles and oval holes in the side plates above the valve spindle crosshead guides for access. Fillers were positioned near the tank fronts and internal baffles fitted at the point where the tank shallowed to prevent surging when the engine decelerated. Commode-style handrails associated with the front footsteps were fitted near the fronts of the side

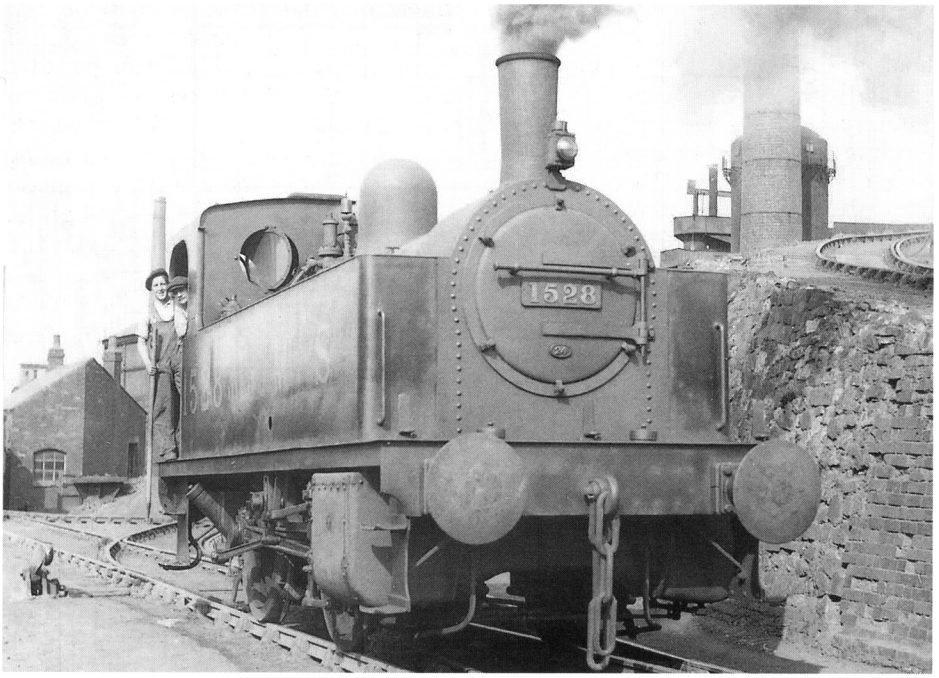



*This photograph shows No. 41528 in October 1964, at which time it had short buffer casings at the rear, even though those at the front were long ones. Note also the turned-up footsteps and later-pattern sandbox filler lids.* R. J. ESSERY

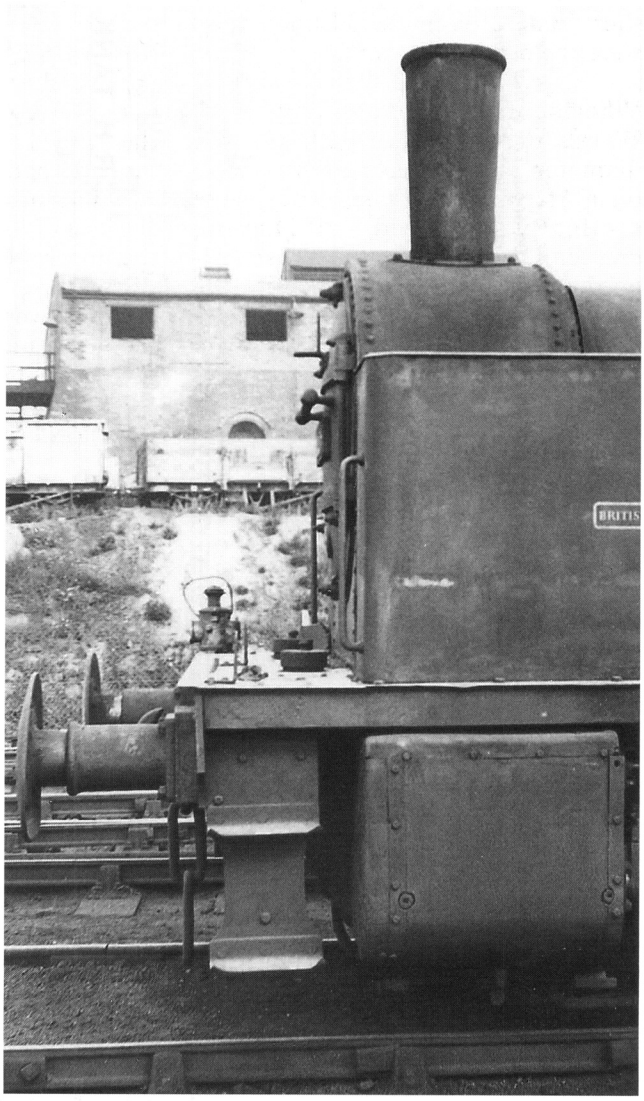
plates. Two stays attached each tank to the boiler, the front ones being equidistant from the front edges of the tanks on each side whereas the left-hand rear one was further forward than that on the right due to the bunker. They were visible from above, being bolted to the tank tops and to brackets that protruded through holes in the boiler clothing. Fire iron holders were fitted to the top of the left-hand tank. Width across the outsides of the tanks was 7ft 8in.

The rear 5ft 6in of the left-hand tank was actually a coal bunker that could notionally accommodate about half a ton of coal. The inside rear corner was angled and had an 11½in wide, 1ft 4in deep shovelling hole in it. To augment this somewhat meagre supply, it was common practice to pile as much coal as possible into the bunker and against the boiler. Some crews even carried coal on top of the right-hand tank in front of the cab and then manhandled it from there onto the footplate. One engine, No. 41535, had coal rails fitted to the bunker top in BR days probably during a general repair that ended in August 1960. I don't know whether any more locomotives were so altered but if they were, I haven't seen any photographs of them.

Problems were encountered with coal piled against the boiler damaging the injector steam pipes and finding its way into the rear axleboxes. A partial solution was to fit a sheet steel fairing from the boiler clothing to the inside edge of the bunker, but it seems that it took until BR days before this was done. The front spectacle glasses also suffered breakage from time to time and in LMS days Nos. 1532, 1535 and 1537 had vertical bars fixed to the frames in front of



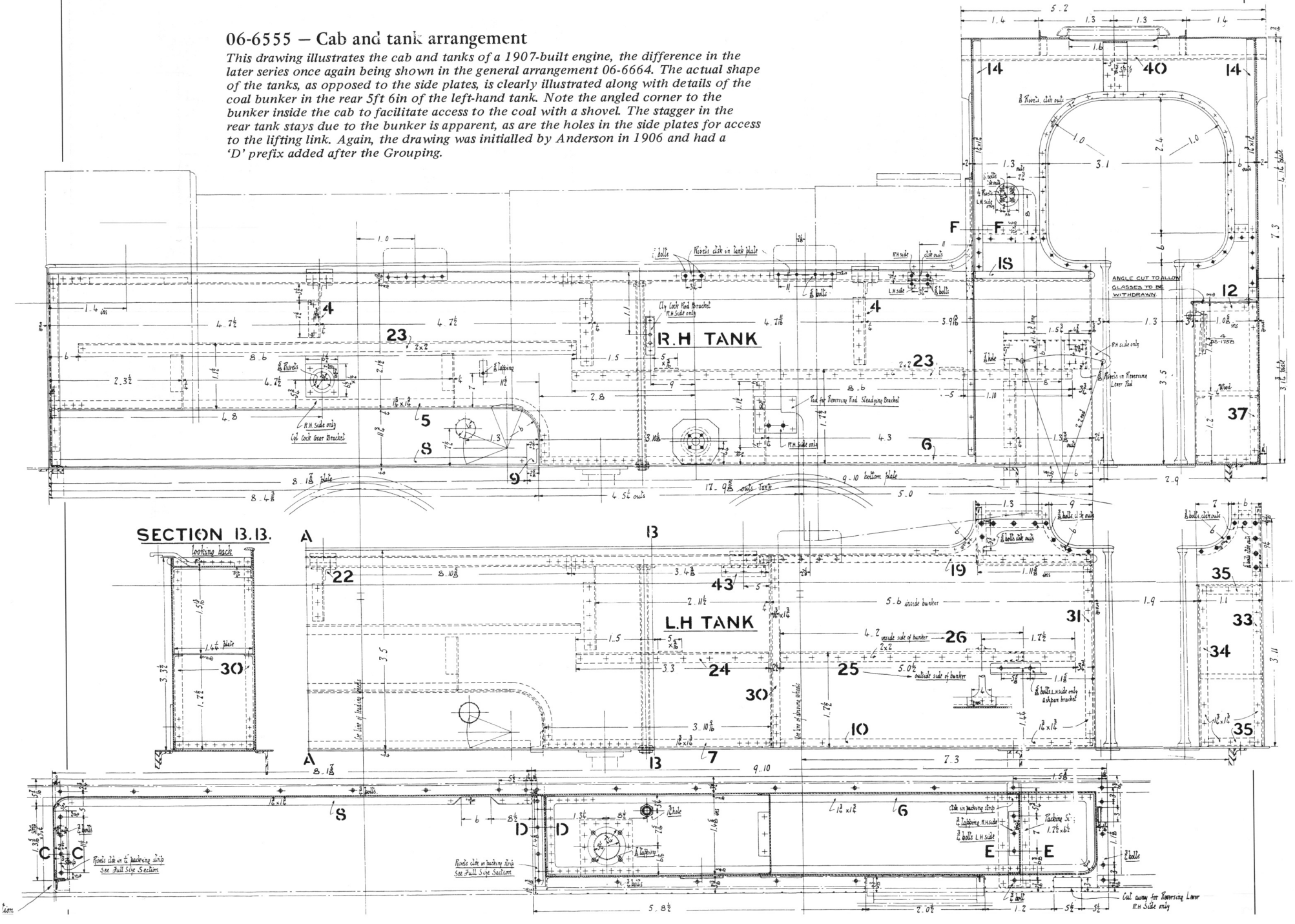

*No. 1528, without Furness lubricators and featuring long buffer casings, snap-head rivets on its smokebox front and turned-up footstep corners, is seen here at Clay Cross Works on 18th August 1934. Note the open spectacle and the length of the rear sandbox filler apparent in this view.*
A. W. CROUGHTON

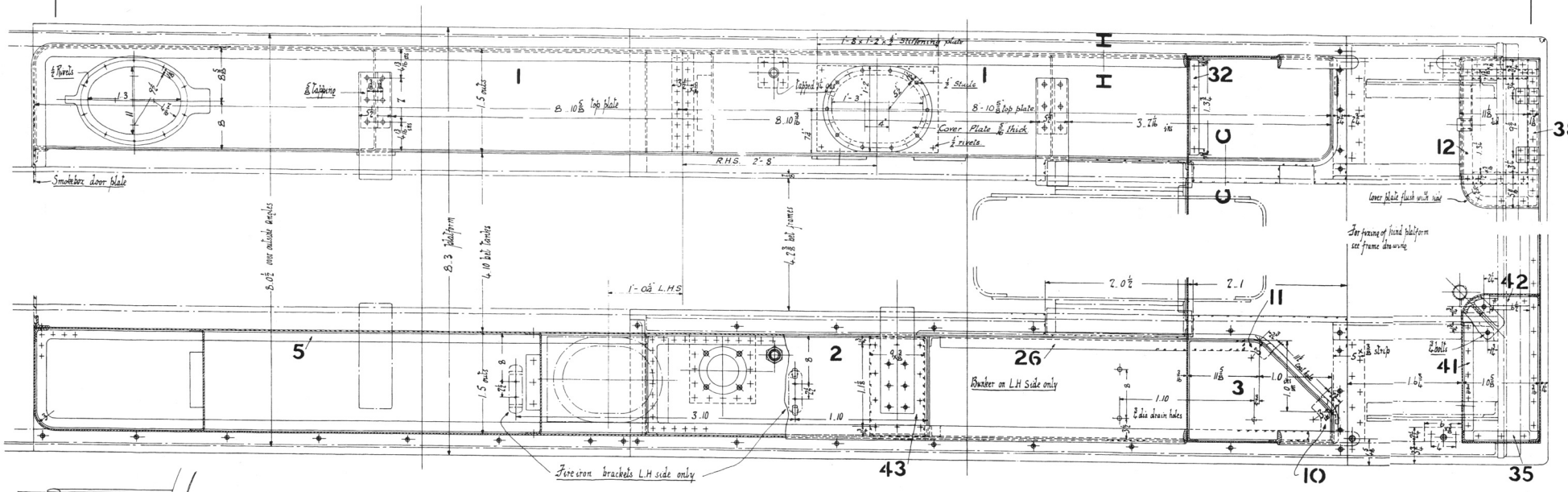


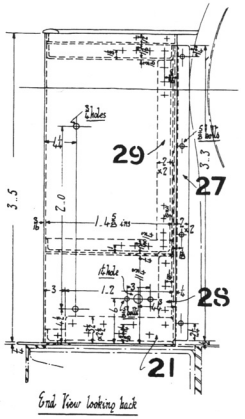
*This photograph of 41528 in October 1964 shows the long front buffer casings, large plates on the buffer heads, turned-up footstep corners, snap-head riveted smokebox and final type of flat-base chimney.*
R. J. ESSERY

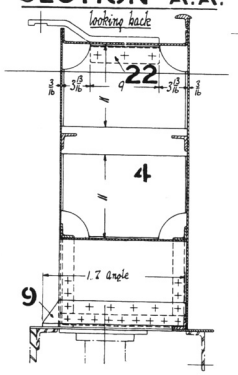
## 06-6555 — Cab and tank arrangement

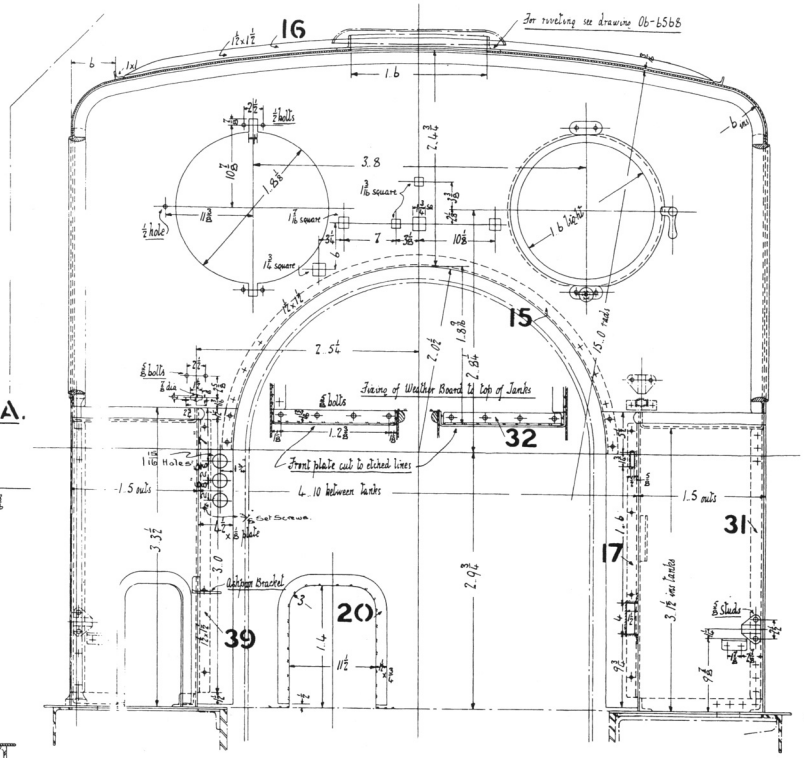
*This drawing illustrates the cab and tanks of a 1907-built engine, the difference in the later series once again being shown in the general arrangement 06-6664. The actual shape of the tanks, as opposed to the side plates, is clearly illustrated along with details of the coal bunker in the rear 5ft 6in of the left-hand tank. Note the angled corner to the bunker inside the cab to facilitate access to the coal with a shovel. The stagger in the rear tank stays due to the bunker is apparent, as are the holes in the side plates for access to the lifting link. Again, the drawing was initialled by Anderson in 1906 and had a 'D' prefix added after the Grouping.*

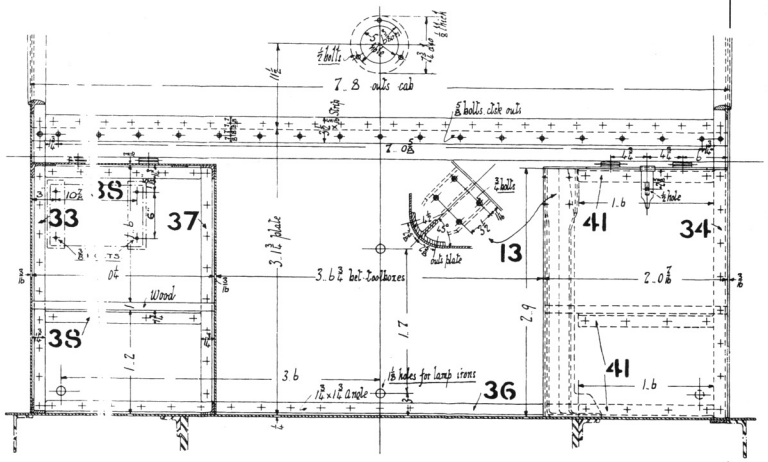




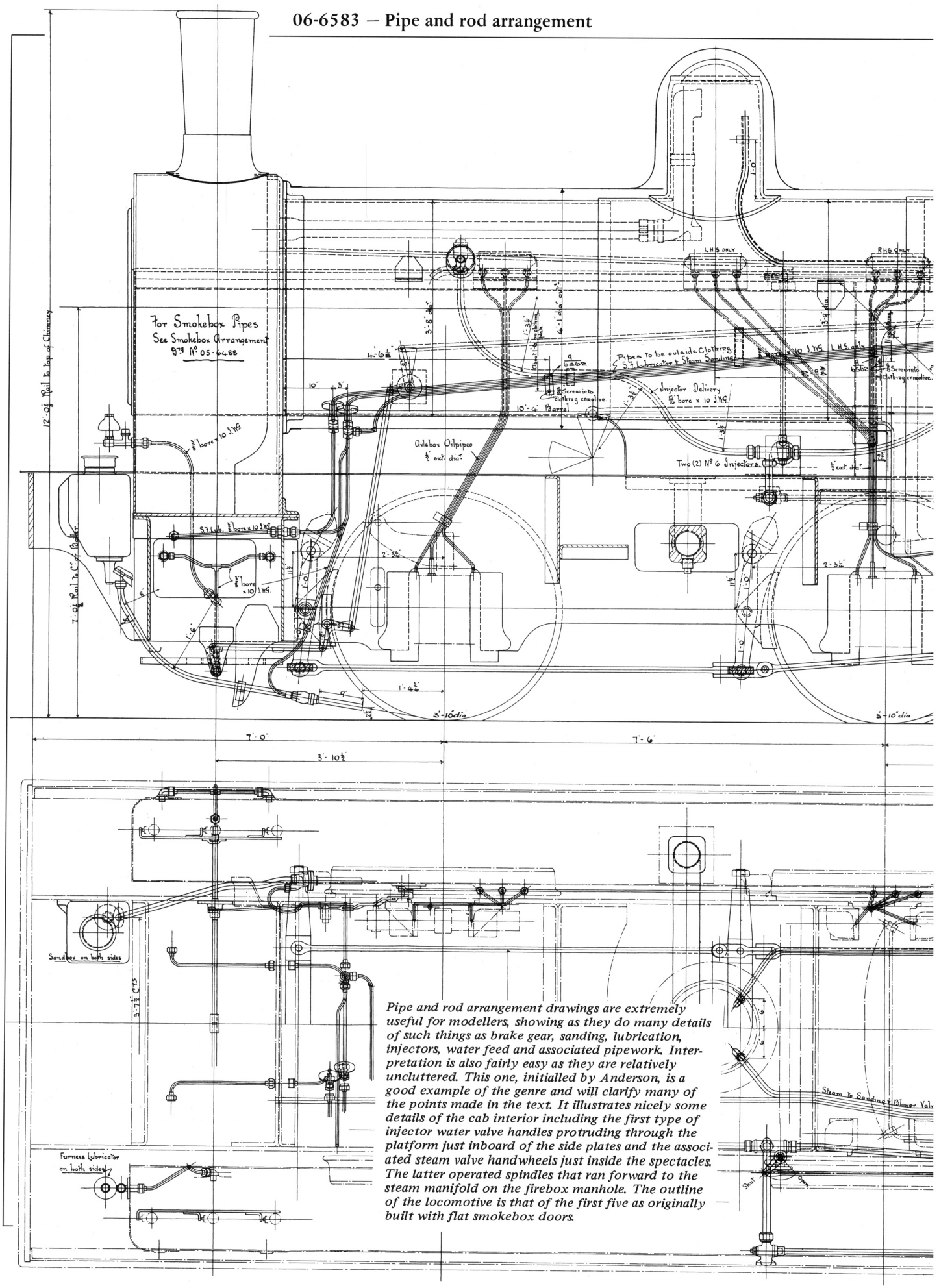

| ALTERATIONS | C | H | G | DATE |
|---|---|---|---|---|
| HOLES FOR GAUGE GLASS CASE 4/S-1758 ADDED | | | | 12:1:40. |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

| DATE | CREWE A/C | DERBY O/ | ENGINE Nos | CLASS |
|---|---|---|---|---|
| 12:2:06 | | 3031. | 1528-1532. | 0-4-0 TNK. |
| 10:3:21 | | 5628. | 1533-1537. | " " |
| | | | | |

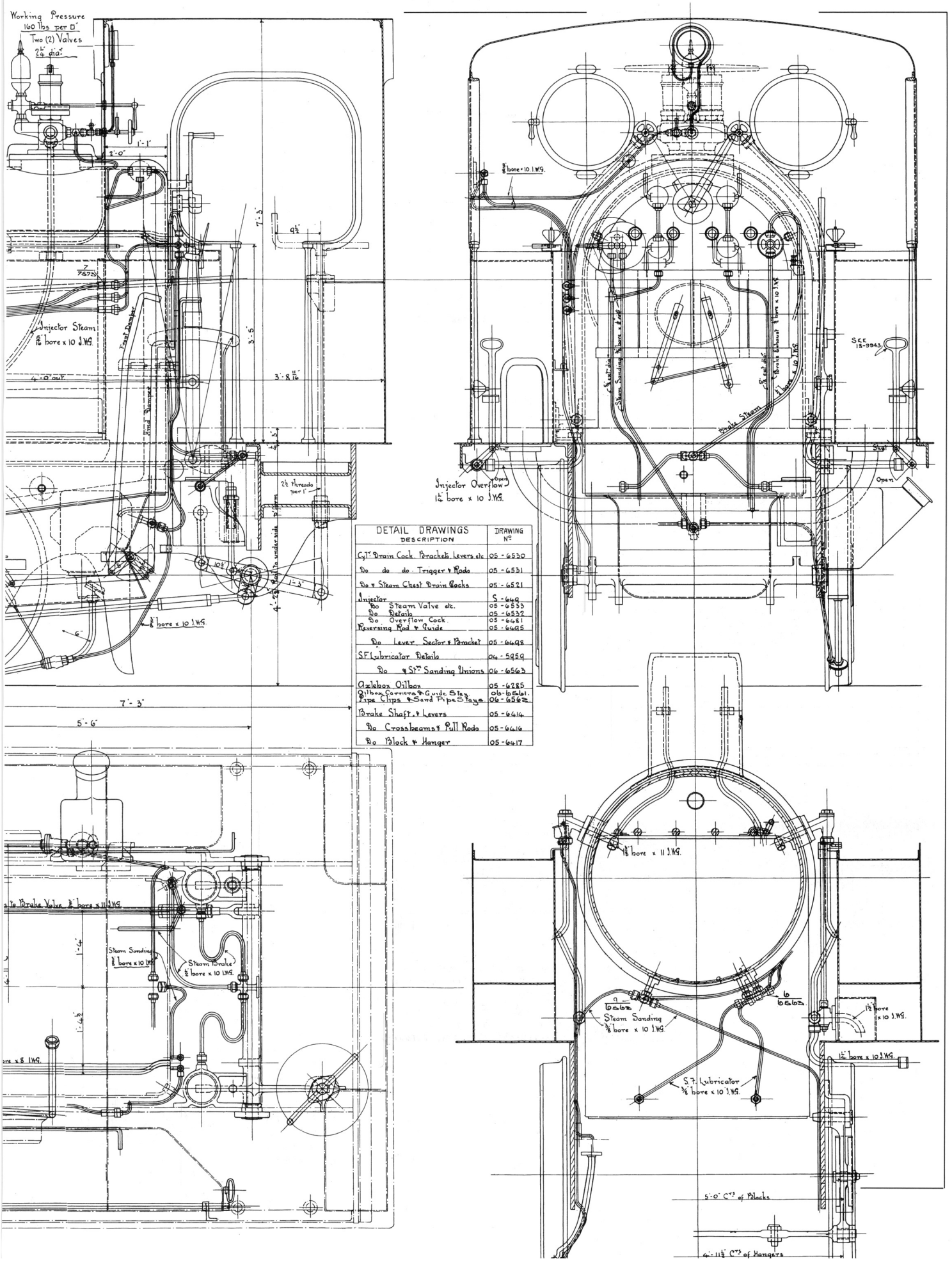
Note — Front of tanks to finish flush with smokebox door plate

Note — All rivets to be 9/16 dia when finished unless otherwise stated, and flush outside of Cab and Tanks.

# 06-6583 — Pipe and rod arrangement



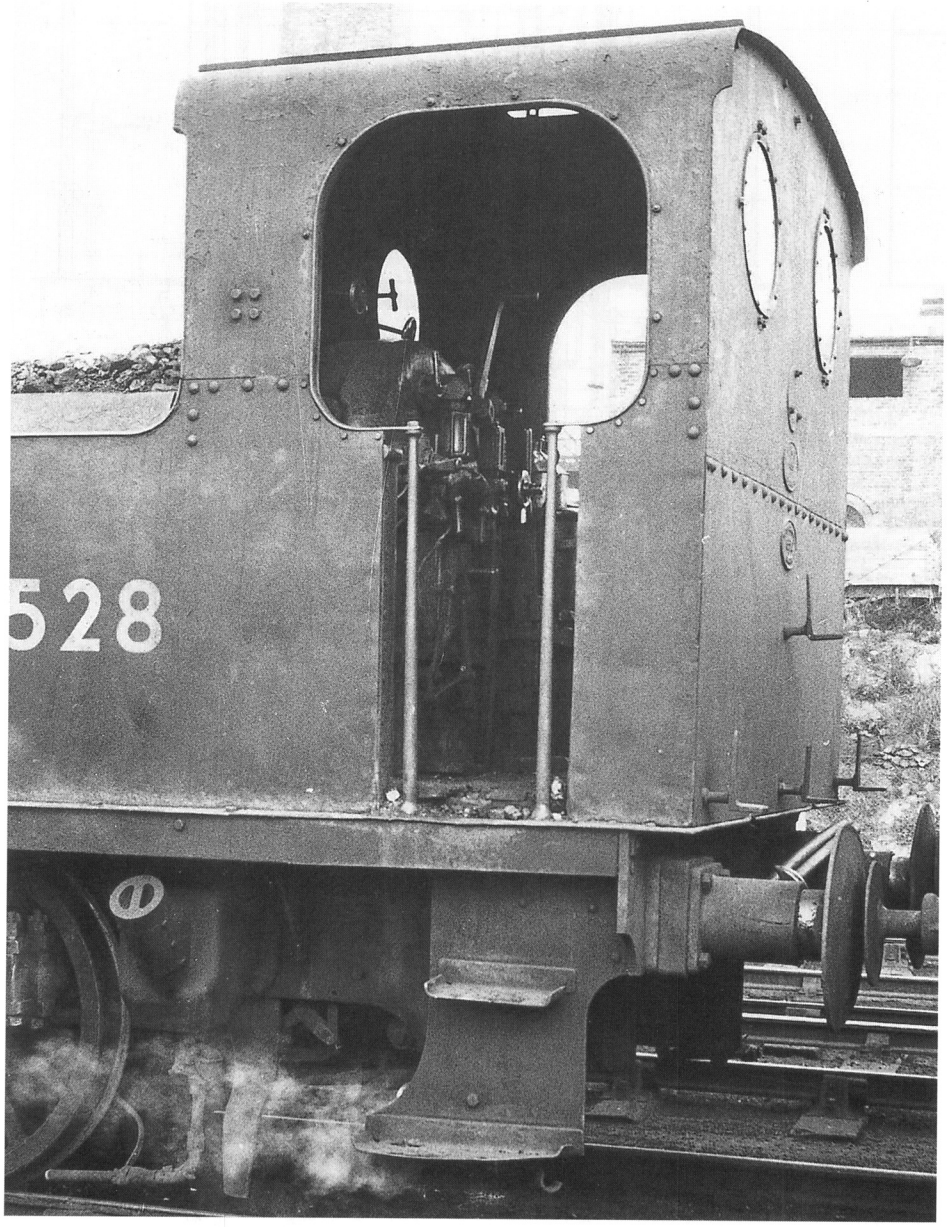

*Pipe and rod arrangement drawings are extremely useful for modellers, showing as they do many details of such things as brake gear, sanding, lubrication, injectors, water feed and associated pipework. Interpretation is also fairly easy as they are relatively uncluttered. This one, initialled by Anderson, is a good example of the genre and will clarify many of the points made in the text. It illustrates nicely some details of the cab interior including the first type of injector water valve handles protruding through the platform just inboard of the side plates and the associated steam valve handwheels just inside the spectacles. The latter operated spindles that ran forward to the steam manifold on the firebox manhole. The outline of the locomotive is that of the first five as originally built with flat smokebox doors.*



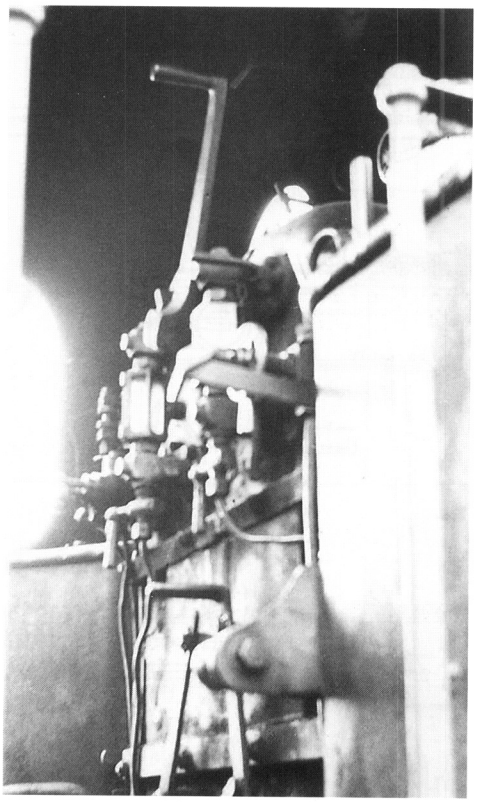

| DETAIL DRAWINGS DESCRIPTION | DRAWING No |
|---|---|
| Cyl.s Drain Cock Brackets Levers etc | 05 - 6530 |
| Do do do Trigger & Rods | 05 - 6531 |
| Do & Steam Chest Drain Cocks | 05 - 6521 |
| Injector | S - 649 |
| Do Steam Valve etc. | 05 - 6533 |
| Do Details | 05 - 6532 |
| Do Overflow Cock | 05 - 6481 |
| Reversing Rod & Guide | 05 - 6495 |
| Do Lever, Sector & Bracket | 05 - 6498 |
| S.F. Lubricator Details | 04 - 5959 |
| Do & Sl.s Sanding Unions | 06 - 6563 |
| Axlebox Oilbox | 05 - 6285 |
| Oilbox Carriers & Guide Stay | 06 - 6561. |
| Pipe Clips & Sand Pipe Stays | 06 - 6562 |
| Brake Shaft & Levers | 05 - 6414 |
| Do Crossbeams & Pull Rods | 05 - 6416 |
| Do Block & Hanger | 05 - 6417 |

the glass. None of the other locomotives seems to have been modified in this way and in BR days 41537 was fitted with ordinary spectacles minus bars.

The cab was 4ft 10in long and 7ft 3in from the platform to the underside of the roof. Round spectacles were fitted into the front and rear plates with pivots top and bottom so that they could be opened. The right-hand tank protruded into the cab 1ft 5in from the side and extended back to the gangway. The coal bunker took up a similar amount of the fireman's space on the left. At the rear were two 2ft 9in high, 2ft 0¼in wide and 1ft 0⅝in deep toolboxes. Usable depth to the wooden bases of the boxes was 1ft 6in, i.e., the bases were 1ft 3in above the platform. Since none of the engines had vacuum brakes or carriage warming apparatus and the pipework associated with the injectors was outside the cab, the firebox backplate was relatively uncluttered. Steam admission to the injectors was controlled by two handwheels above the backplate that operated spindles passing through the cab front to valves on the steam manifold. Initially, the water supply was governed by lifting handles that protruded from the floor just behind the bunker and right-hand tank. These were later altered to rotating handles on spindles. As well as the regulator and two gauge glasses, the firebox backplate was equipped with blower and steam sanding valves on the left-hand side and steam brake on the right. Firedoors were the double rectangular, sliding type and above




*This photograph shows the cab of 41528 in its late BR days. Note the short hind buffer casings, turned-up footstep ends and later type of sandbox filler lid. The arrangement of the cab handrails characteristic of the first batch of engines is also evident.* AUTHOR'S COLLECTION

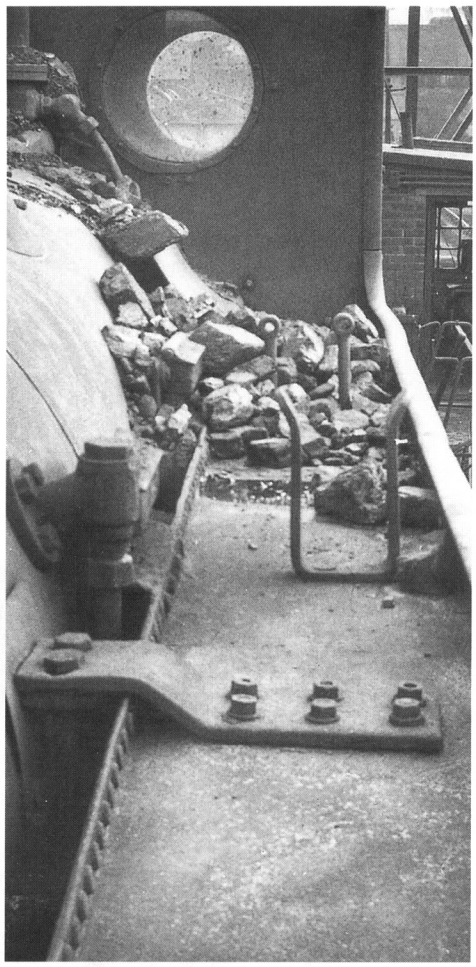


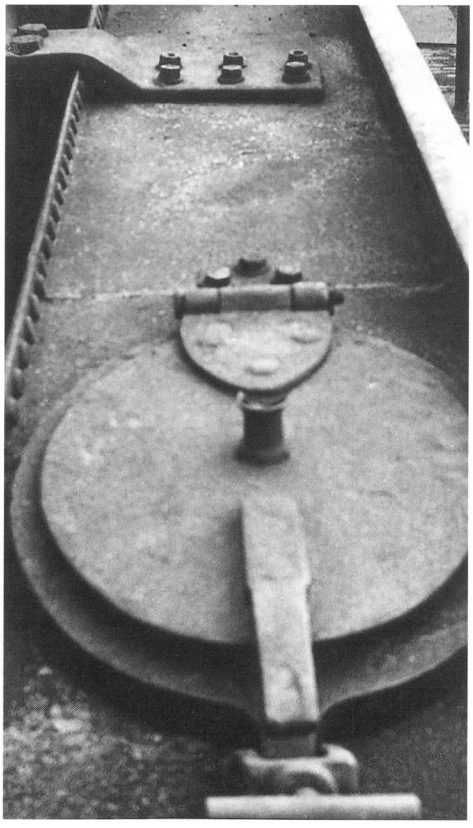
*A view through the right-hand gangway of 41528 in October 1964.* R. J. ESSERY

*Shunting could be a mucky business. No. 41532 appears to have rough shunted a wagon of white paint when working at Sherwood Colliery near Mansfield in February 1954. The picture is useful for the detail of the sheet metal shield that was fixed between the boiler clothing and inside edge of the coal bunker to prevent damage to the injector steam pipe and spillage of coal between boiler and bunker. The first type of BR emblem was slightly further back than usual on 41532 although the number was in the normal position.* AUTHOR'S COLLECTION

the backplate were the whistle lever and boiler pressure gauge. The handbrake was just in front of the left-hand toolbox, the spindle being supported by a bracket fixed to the front right-hand corner. A sight feed displacement lubricator was attached to the inside of the left-hand side plate forward of the cut-out, its position shown outside by 4 bolt heads in a square. The roof was fitted with a square ventilator that could be raised or lowered and tilted to the front or rear.

Tanks, cab and bunker were made from 3/16in steel plates. The cab roof was stiffened by two pieces of 1½in angle-iron riveted transversely between the rainstrips. The most obvious difference between the batches of engines was the widespread use of snap-head rivets on tank and cab sides of the later ones compared with the mainly flush-riveted earlier engines. The cab gangways of the 1907 engines had pillar handrails in line with the side plates and supported at the tops by extensions of the beading around the cut-outs. On the later locomotives, the gangways were narrower and the commode-style handrails were fitted into pillars fixed to the side plates.





Right: *The upper photograph shows the left-hand tank top and forward tank stays as well as the boiler clacks and fire-irons. As was common with these engines, coal was liberally piled onto the tank top and boiler as well as in and on the bunker. The lower picture shows the left-hand tank filler and forward stay. Both are of 41528 in October 1964.* R. J. ESSERY

## THE ENGINES IN SERVICE

When new, Nos. 1528 and 1529 were sent to Staveley where, amongst other things, they were used for shunting duties that the Midland contracted to perform at the Staveley Iron and Coal Company. No. 1530 was initially stationed at Gloucester to work at the docks whilst 1531 and 1532 went to Burton on Trent for sorting the Midland's vast beer traffic and supplies to the breweries. By April 1914, the first three were at Hasland whilst 1531 and 1532 remained at Burton but in December 1920 all except 1531 had moved to Staveley, the exception being stationed at Gloucester. All of the 1921 and 1922 production were initially sent to Staveley, so for a short while

*The first two engines built are seen here at Staveley in 1936. No. 1529 had what I believe was a unique arrangement of numbers and letters on the left-hand tank side with the numbers at the front. The right-hand side had the normal layout. No. 1528 had a different base to its chimney from that originally fitted, with a sharper radius to the flare, and also had deeper beading round the rim. Note the position of the water capacity plate – the lower of the two – on the back of 1529's cab. Some engines had it above the lamp iron immediately below the join between upper and lower cab rear plates.* H. C. CASSERLEY

*No. 1528 was photographed in about 1936 with snap-head rivets on its smokebox door wrapper as well as around the base of its chimney, the Furness lubricators removed from the tank fronts, and the corners of its footsteps turned up. Although it wasn't too dirty, the engine appears grey rather than black and I was told by an ex-Derby paint shop man that this happened relatively quickly to engines finished at Derby because the finishing varnish used there went somewhat translucent after a while in service.*

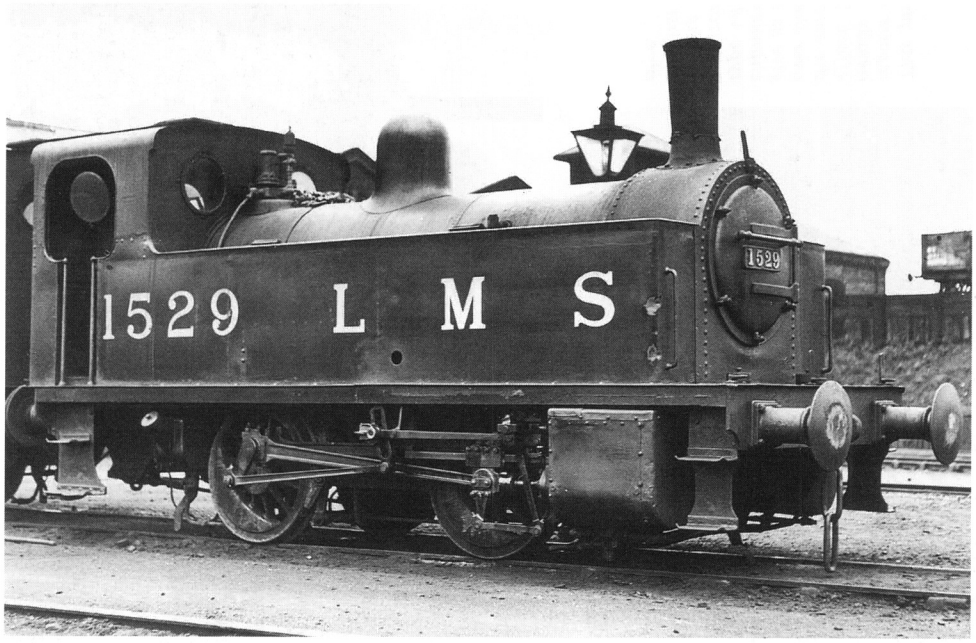
COLLECTION R. J. ESSERY

nine of the Class were there, but almost immediately 1533 and 1534 were transferred to Hasland. In late 1923, No. 1535 went to Derby with 1536 and 1537 went to Burton. Apart from the sheds already mentioned, Upper Bank had 1530 in 1927 and 1531 spent from late 1932 to April 1935 at Toton before going to Leeds for the following four months. In March 1936 the distribution was 1528, 1529, 1533 and 1534 at Staveley, 1530–1532 at Hasland, 1535 and 1536 at Burton, and 1537 at Gloucester.

The Staveley and Hasland engines were often used in various collieries and works and between the end of 1936 and late 1937 were recorded from time to time as being officially on loan. The details I have aren't complete but are as follows, dates being week endings unless otherwise stated:

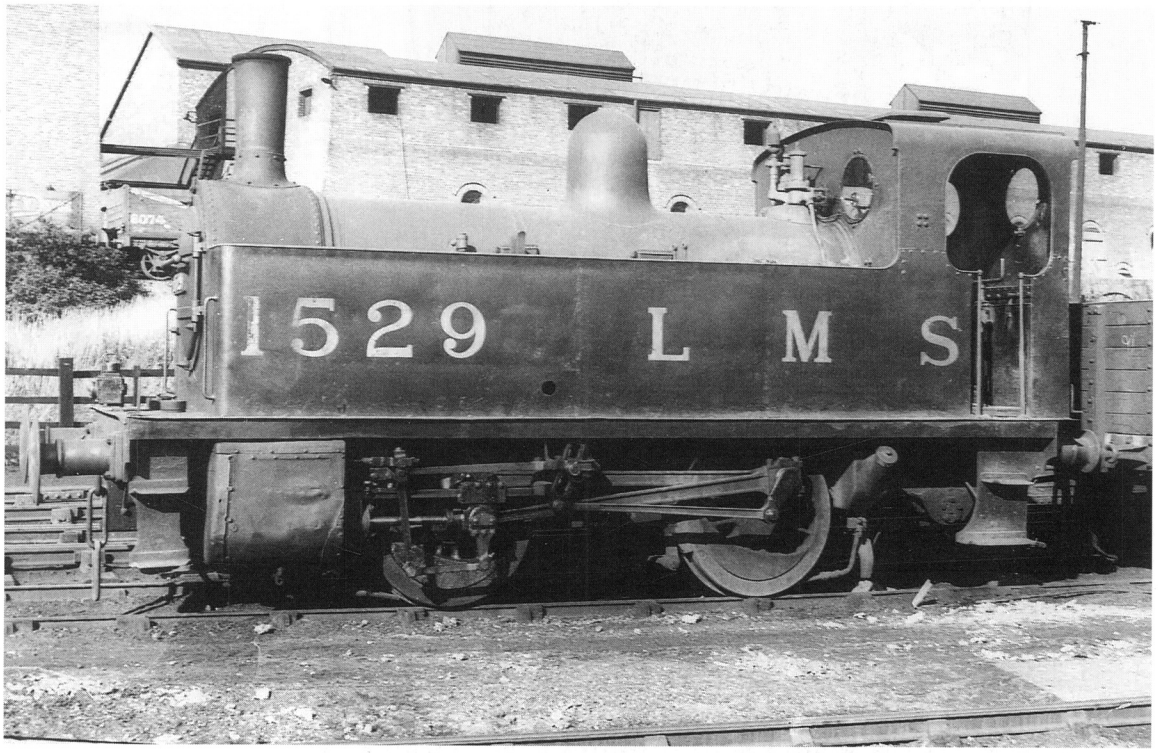
1528 – Staveley Coal & Iron Co. 2 Jan 37–13 Feb 37, Chesterfield Colliery 12 Jun 37–31 Jul 37, and Clay Cross Works 14 Aug 37–?

1529 – Staveley Coal & Iron Co. 2 Jan 37–17 Apr 37, Chesterfield Colliery 12 Jun 37–21 Aug 37, and Grassmoor Colliery 28 Aug 37–18 Sep 37



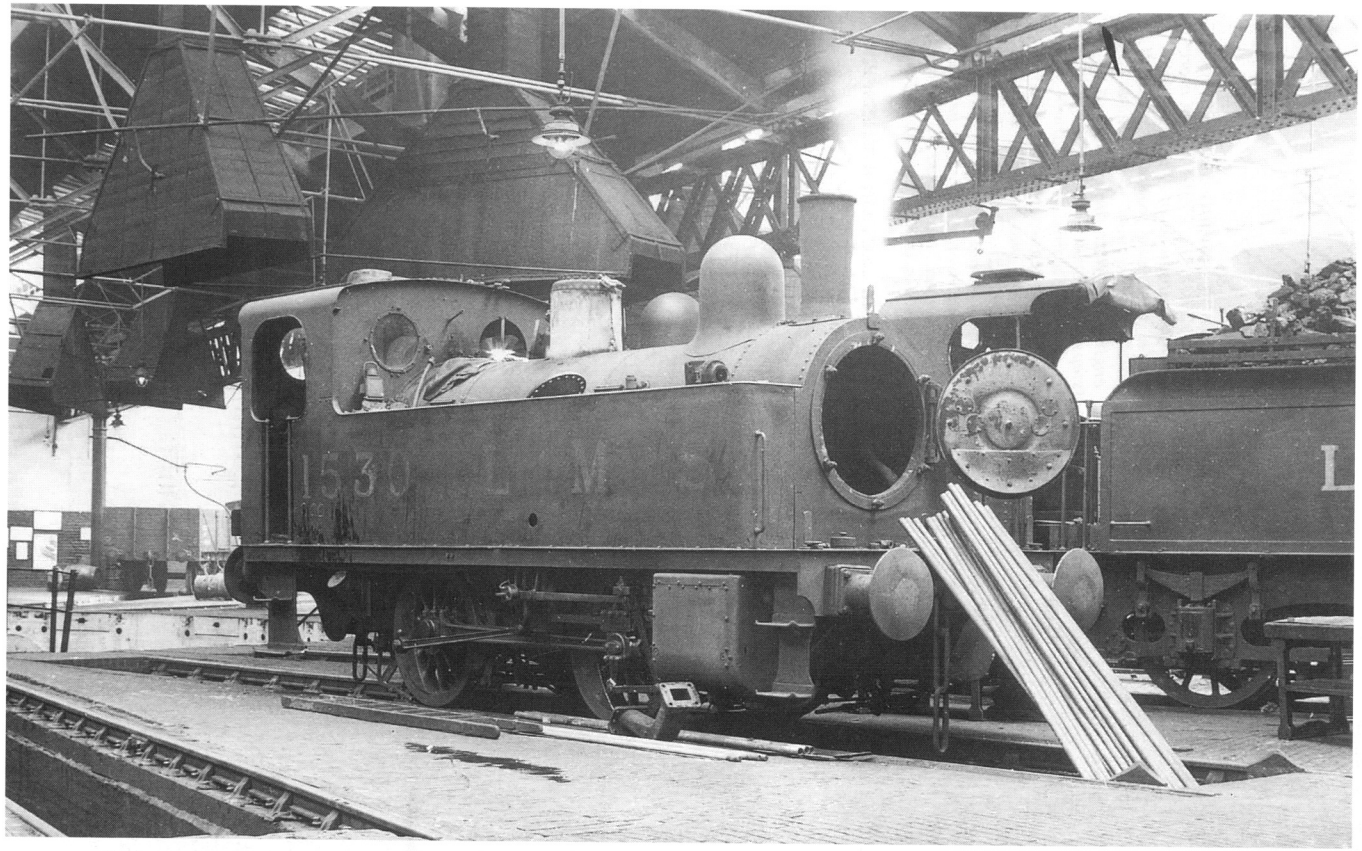

*This picture of a slightly battered looking No. 1529 in the 1930s makes more obvious the absence of Furness lubricators on the tank fronts. One small modification that had been made to the engine was that the corners of the footsteps had been bent up to give a more secure footing. The lower cab footsteps had acquired rows of snap-head rivets on the angles, and the chimney, although basically still the original type fitted to the locomotive, had snap-head rivets on the join between base and funnel. Snap-head rivets had also been used around the front of the smokebox.*

COLLECTION R. J. ESSERY



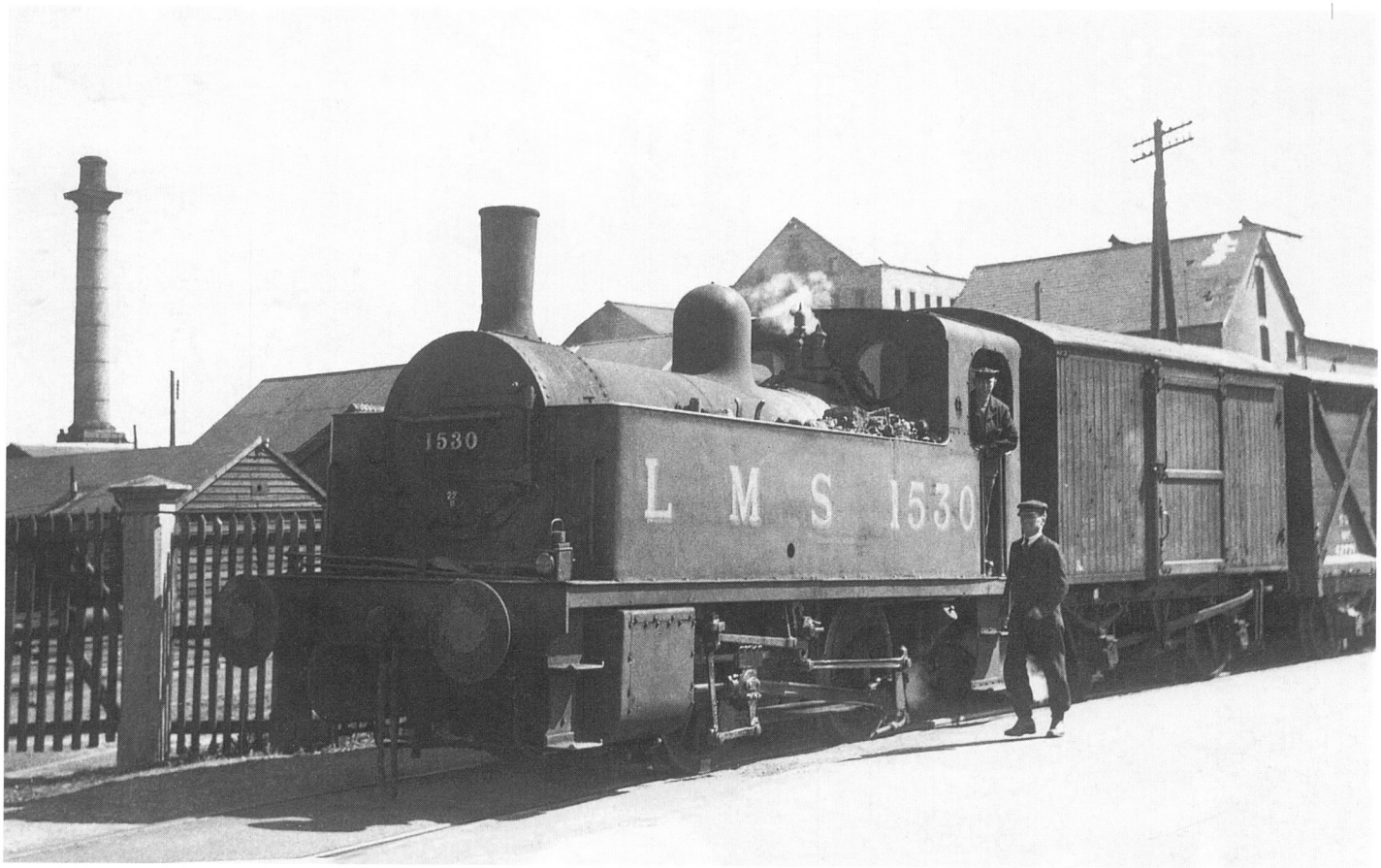

*No. 1529 seems to have been particularly prone to damage. The front of the platform, front footstep support and cylinder clothing all show signs of distress in this picture of its unique left-hand side with transposed characters. Note the snap-head rivets around the upper edge of its chimney base.*

COLLECTION R. J. ESSERY

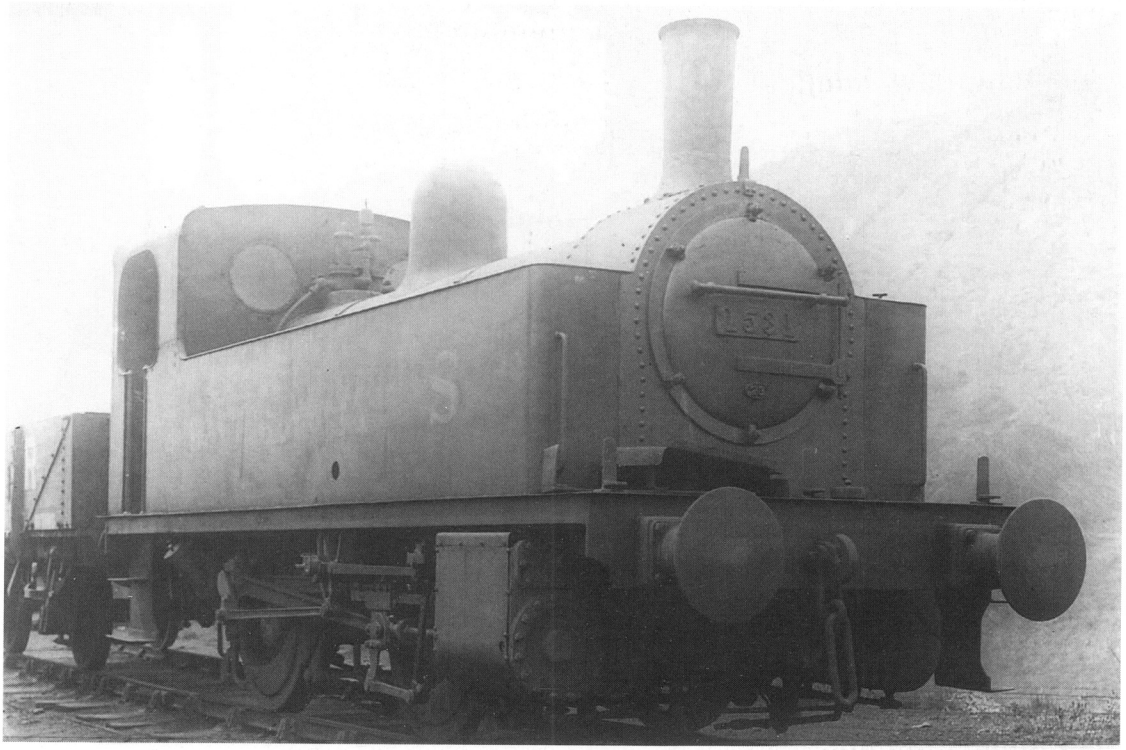


*This photograph shows No. 1530 undergoing repairs at Hasland in 1930 and illustrates the details of Deeley's smokebox doors to good effect. The door fitted into the front ring on the smokebox and the six dogs were swivelled over the rim before the nuts were tightened to give as airtight a fit as possible. The base of the chimney had been changed to one of the later type with a sharper flare, although the smokebox front was still flush riveted. The elbow pipe on the floor by the cylinder was one of the exhaust pipes that led from cylinder to blast pipe.* COLLECTION R. J. ESSERY

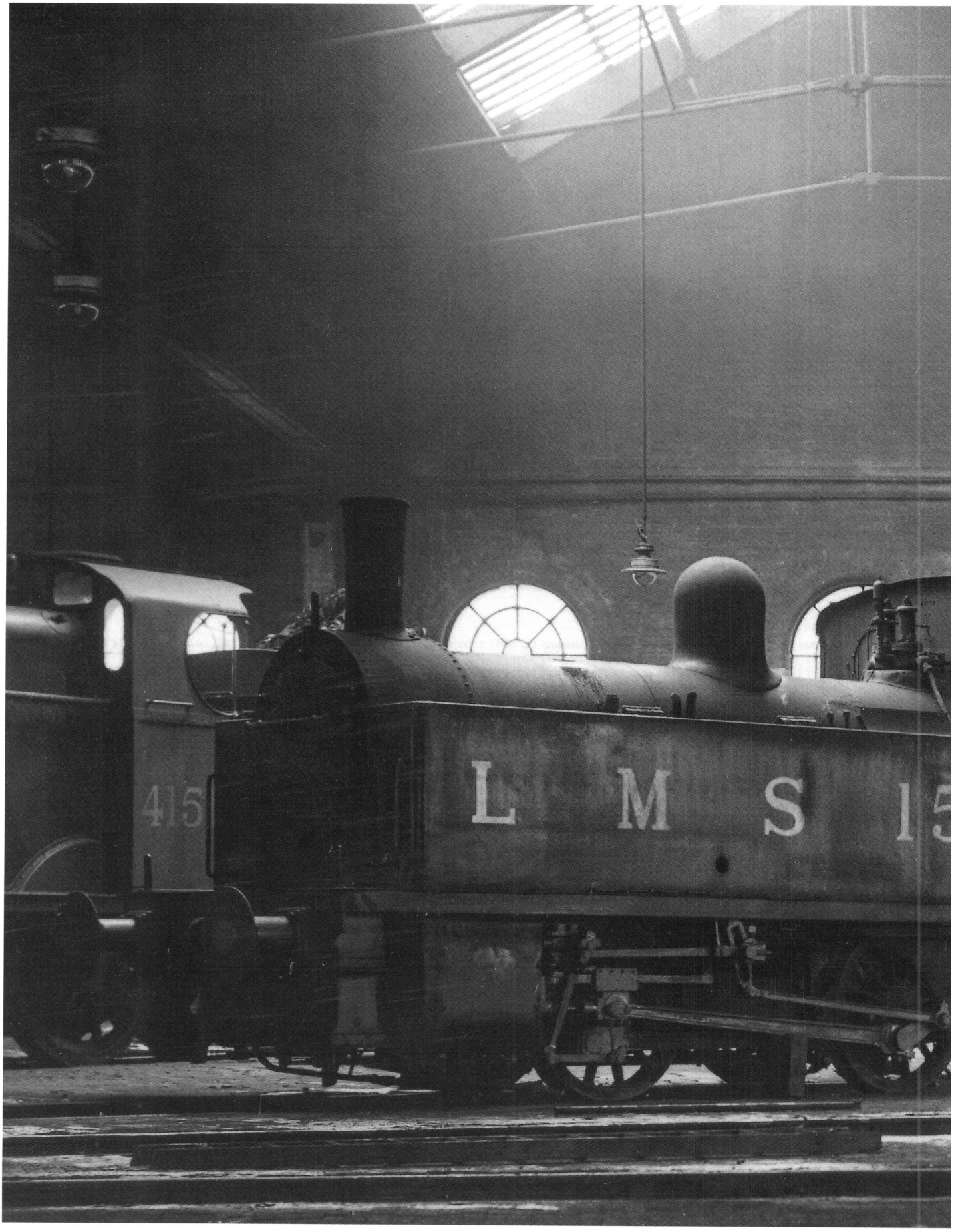
*Compared with the photograph of 1528 on page 32, this picture of 1530, taken six years earlier, shows that its footsteps were still flat and flush rivets had been used to join the chimney base to the funnel. It did, however, have snap-head rivets on its smokebox wrapper and no Furness lubricators on the tank fronts.*
J. A. G. COLTAS




*One of three engines I know to have received yellow, shaded vermilion transfers after 1937 was No. 1530. It still had the shading visible on 26th April 1947 when it was photographed shunting at Gloucester Docks. Apart from turned-up footstep corners, snap-head rivets on the smokebox wrapper and lack of Furness lubricators, the engine appears to have been in 'as built' condition.* AUTHOR'S COLLECTION




*Pictured at Hasland on 9th May 1932, No. 1531 was in the same condition as 1530 in the picture on page 34.* W. L. GOOD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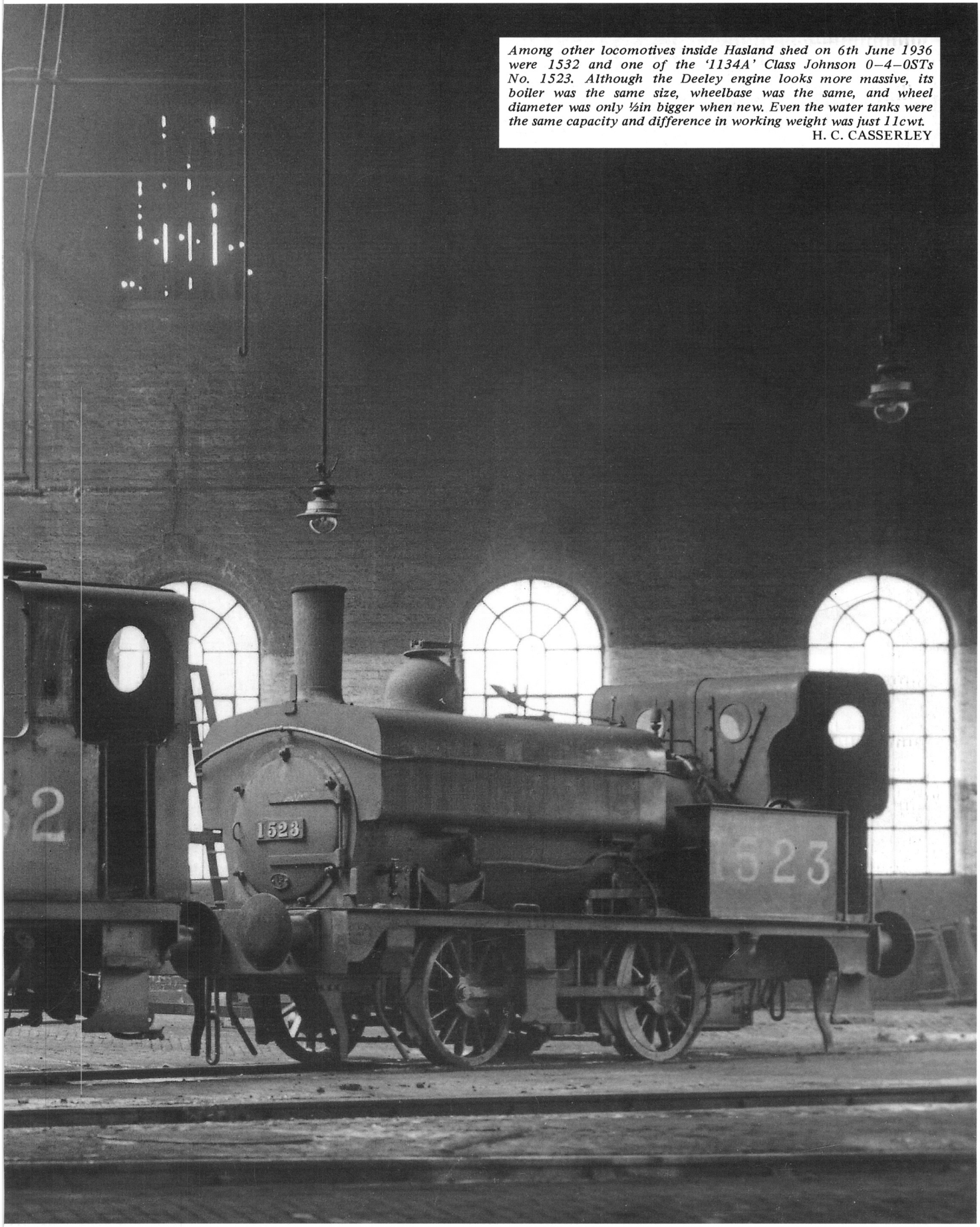
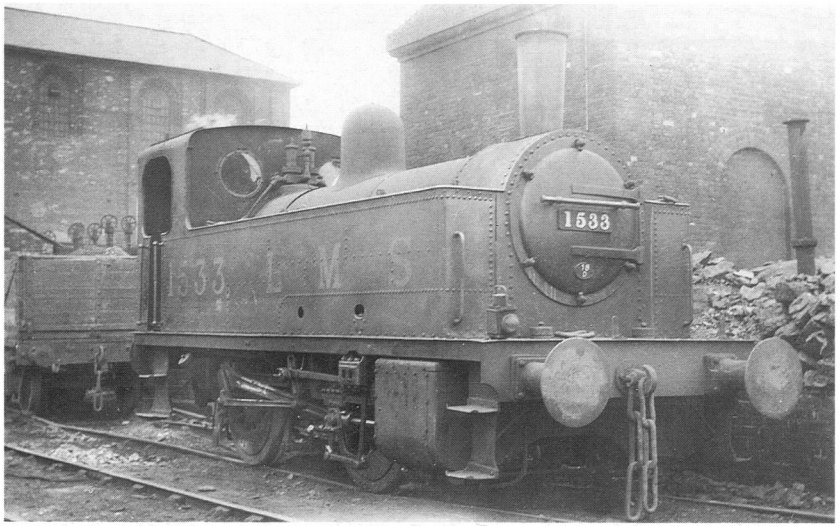
L M S




*Among other locomotives inside Hasland shed on 6th June 1936 were 1532 and one of the '1134A' Class Johnson 0–4–0STs No. 1523. Although the Deeley engine looks more massive, its boiler was the same size, wheelbase was the same, and wheel diameter was only ½in bigger when new. Even the water tanks were the same capacity and difference in working weight was just 11cwt.*

H. C. CASSERLEY




*On 20th April 1945, No. 1533 was seen at Staveley. Since being built, it had received a 'bent washer' base chimney, its Furness lubricators had been removed, and the footstep corners had been bent up.*
C. H. A. TOWNLEY

*This study of No. 1534 taken in about late 1932 or early 1933, shows the engine with a later type of chimney base. It also had long buffer casings with prominent casting beads at the rim and mounted on thin spacers. The balance pipe between the side tanks can be seen passing through the slot in the frame between the expansion link and the trailing wheel. The right-hand clack is in view above the tankside letter 'M' with the front axlebox and axlebox guide oil box immediately behind it. The rear one is above the space between the '3' and '4'. The small 'T' shaped object above the front of the tank was the fastener for the tank filler. The footsteps were still flat but the Furness lubricators had been removed.*
COLLECTION R. J. ESSERY

*This picture of No. 1534 in LMS ownership shows some more of the detail differences between the batches of engines, such as the later type of valve spindle guide, cut-out in the platform angle and opening in the tank side plate above it. The different arrangement of cab handrails and shape of the cab footstep support are also evident. When the photograph was taken, the Furness lubricators had been removed from the tank fronts but the engine had its original type of chimney. Note the large, crescent-shaped integral balance weights and the original type of sandbox filler lid.*
COLLECTION R. J. ESSERY

1531 – Clay Cross Works 2 Jan 37–9 Jan 37, Williamthorpe Colliery 6 Feb 37–10 Apr 37 and 5 Jun 37–10 Jul 37, Wingfield Manor Colliery 1 May 37–5 Jun 37 and 31 Jul 37–18 Sep 37, and Morton Colliery 17 Jul 37–31 Jul 37

1532 – Morton Colliery 28 Dec 36–2 Jan 37, Williamthorpe Colliery 9 Jan 37–16 Jan 37 and 10 Apr 37–5 Jun 37, Wingfield Manor Colliery 13 Mar 37–10 Apr 37, Staveley Coal & Iron Co. 6 Mar 37–13 Mar 37, and Clay Cross Works 25 Sep 37–?

1533 – Staveley Coal & Iron Co. 2 Jan 37–23 Jan 37, 24 Apr 37–8 May 37 and 22 May 37–18 Sep 37, Morton Colliery 20 Feb 37–6 Mar 37, and Clay Cross works 6 Mar 37–13 Mar 37

1534 Williamthorpe Colliery 2 Jan 37–9 Jan 37, and Staveley Coal & Iron Co. 9 Jan 37–13 Feb 37, 10 Apr 37–29 May 37 and 25 Sep 37–?

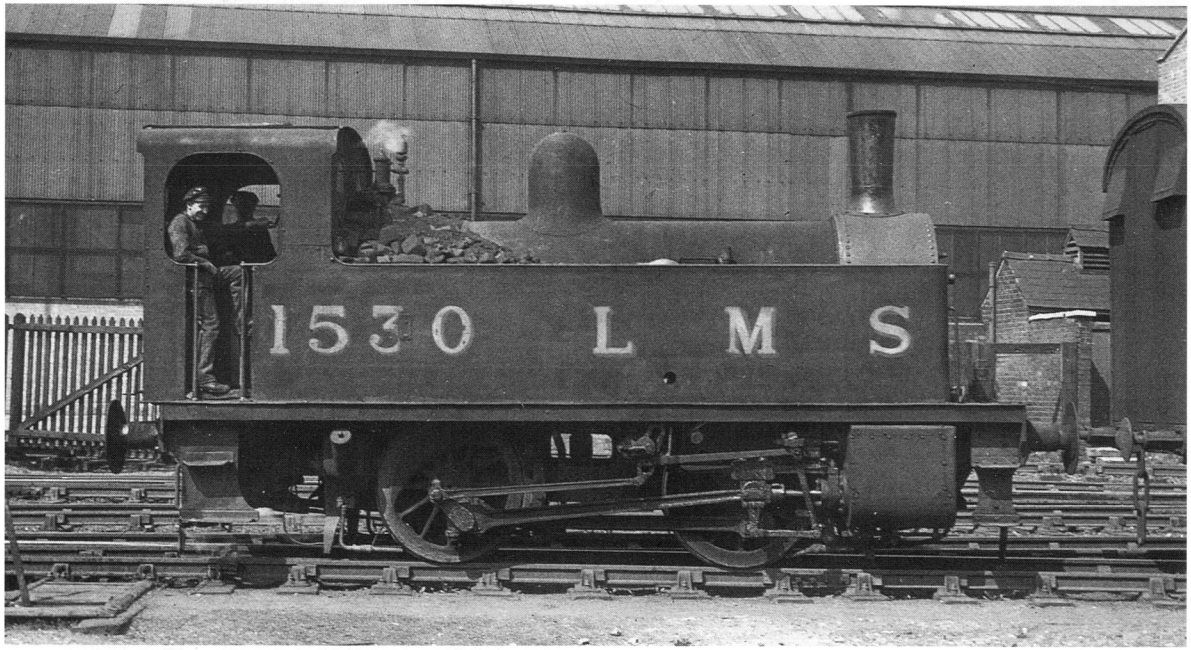
*The use of snap-head rivets around the smokebox wrapper and front plate on the later engines is apparent in this photograph of 1535 at Burton on 25th June 1936. Although the smokebox door number and shed code, as well as the tankside numbers, had been cleaned so as to be legible, the rest of the engine was absolutely filthy and the 14in 'LMS' transfers can hardly be discerned beneath the grime.*

AUTHOR'S COLLECTION

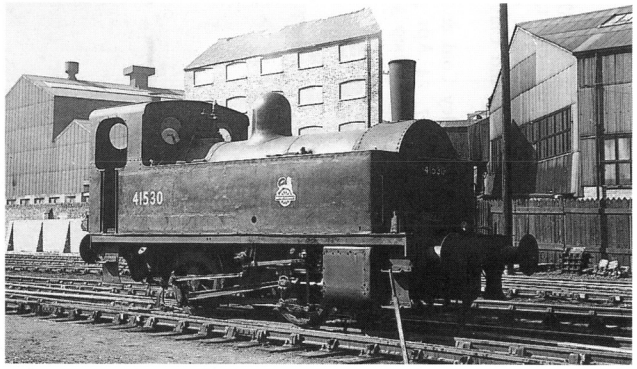
*The detail differences that characterised the 1921 and 1922 engines, which are described elsewhere, are well illustrated in this study of freshly-painted 1535 at Derby. Note the protective bars over the spectacle behind the carefully piled coal on top of the bunker and tank.*

COLLECTION R. J. ESSERY

*No. 41537 was one of three engines I know to have been fitted with bars over the front spectacles to prevent damage from coal. This photograph of it at Gloucester Docks in August 1949 shows why, with what looks like a mixture of slack and briquettes piled right across the top of the boiler. It also shows why sheet metal shields were fitted between the boiler clothing and inside edge of the bunker to prevent the injector steam pipes being damaged and coal falling between boiler and tanks onto the trailing axleboxes. The engine was wearing its BR number in 12in LMS characters and still had 14in 'LMS' on its tank sides, all letters and numerals seemingly plain yellow. The smokebox door had already received its new number plate with Derby/Bow Works style characters. The rivets securing the large plates to the buffers can be seen, probably due to corrosion, and the chimney appears to have been an original style one.* COLLECTION R. J. ESSERY



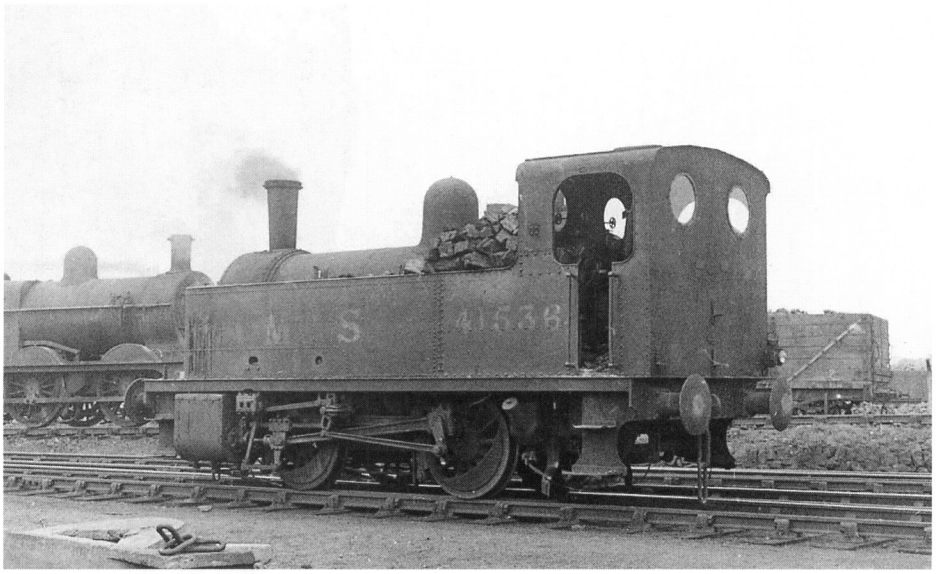

*In May 1947, No. 1530 was seen at High Orchard, Gloucester in typical condition for an engine from the late 1930s onward. The relative sizes of the crew and the goods van illustrate how diminutive these engines were.* W. POTTER




*This fine study of No. 41530 was taken at High Orchard, Gloucester in May 1953. It shows one of the 1907 engines in fairly typical condition for the time with a mixture of modified and unaltered details. Modifications included removal of the Furness lubricators on the tank front plates, the use of snap-head rivets on the smokebox, substitution of a later-style chimney, and turning up of the footstep corners. It did not, however, have replacement rear sandbox filler lids or long front buffer casings and was without spectacle bars. By the time this picture was taken, the locomotive had been in service nearly 46 years and had another four years to go before withdrawal. During its lifetime it was reckoned to have run nearly 696,000 miles – not bad for a little shunting engine. It was withdrawn from stock during the week ending 4th May 1957 and cut up on 18th May.* W. POTTER

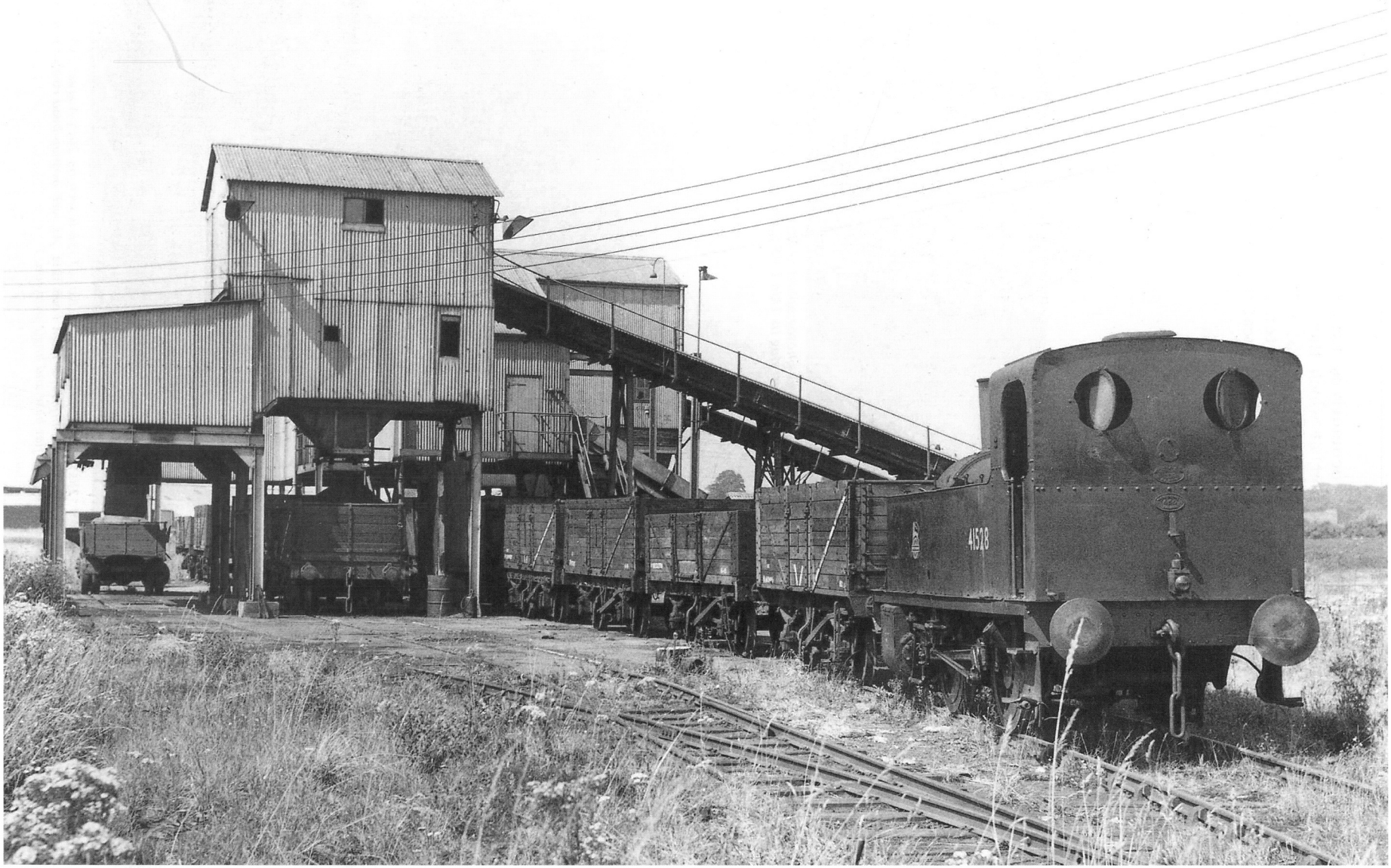
In 1942, three Burton engines were loaned on a daily basis to the United States authorities – No. 1530 during the week ending 3rd October, No. 1535 for four days to 31st December, and 1536 during the week ending 26th December. No. 1533 was also loaned to the War Department for duties at Sinfin during the three days from 15th December–17th December 1942. Another shed that had one of the engines for a while was Sheffield, where 1532 was stationed from January 1944 to July 1945. Additionally, there were loans to other regions during the 1940s and 1950 – No. 1528 and 1529 from 1941–1950, No. 1533 from 1942–1950, No. 1535 from 1943–1950 and 1536 from 1944–1950. I have no other details except that the engines were not on loan constantly but for intermittent periods during the years indicated. Likewise, at least Nos. 1528, 1536 and 1537 were loaned to Cadbury's at Bournville during 1948 but I have no further details.

All ten locomotives survived nationalisation, at which time they were distributed between Staveley, Gloucester, Hasland, Burton and Derby. Apart from those locations, Normanton had 41534 for eleven months from December 1955 whilst Rowsley was loaned No. 41536 from May to September 1956 for working on the Cromford and High Peak.



*In June 1950, No. 41536 was photographed at Burton with one of the later chimneys having a 'bent washer' base and still carrying its 14in LMS lettering. Stock numbers were 10in.*
H. C. CASSERLEY

*There were a few duties other than shunting on which the '1528s' were sometimes used. No. 41536 is seen on 20th August 1955 in charge of the Sheep Pasture to Middleton empties working near Middleton on the Cromford & High Peak line. As well as snap-head rivets on the buffer beam, the engine had received one of the particularly awful chimneys with a flat base and angle-iron rim.*
R. J. BUCKLEY




*No. 41528 is seen here shunting mineral wagons under a coal hopper at an unknown site in the 1950s. Its 'monocycling lions' emblems were slightly further forward than usual and it can be seen that the rear spectacles were open. A '1528' cab could be a hot environment in warm weather.*

T. G. HEPBURN

Withdrawal started with number 41530 of the 1907 batch in May 1957 and the last survivors were the first examples of each of the two batches, Nos. 41528 and 41533, which went in April 1966. No. 41535 was sent in September 1963 to the Western Region and worked at Swansea docks, being stationed at East Dock and Neath sheds and withdrawn from the latter in September 1964. None of the Class was preserved. Details of building, renumbering and withdrawal dates as well as district and shed allocations are at the Appendix.

I have little first-hand information from enginemen about the locomotives' performance in everyday service. What I have managed to glean is that the enclosed cab was a mixed blessing as whilst it was warmer in winter than the skimpy 'cabs' of the Johnson locomotives, it could get

*Whilst screw couplings were rare on these engines, a combination of screw and three-link couplings, as seen on 41536 at Derby in the 1950s, was even more so. The characters on the smokebox door number plate were in a style peculiar to Derby and Bow Works. There was so much coal piled on top of the bunker that it must have obscured the forward view from the cab and it looks precariously balanced. It had also cracked the spectacle glass, which is why some of the engines had bars over them. The style of chimney fitted to this engine in its later day, with flat base and angle-iron rim, is apparent. The engine was on a trip working, as shown by the number board on its centre lamp iron.*
COLLECTION R. J. ESSERY

*The layout of 41536's numbers and BR emblems was what may be called 'standard' for one of the '1528' Class in the mid-1950s with the emblems directly above the front wheels and the hindmost point of the number almost directly underneath the front of the cab. Note the later-pattern chimney and sandbox filler lid.*
AUTHOR'S COLLECTION

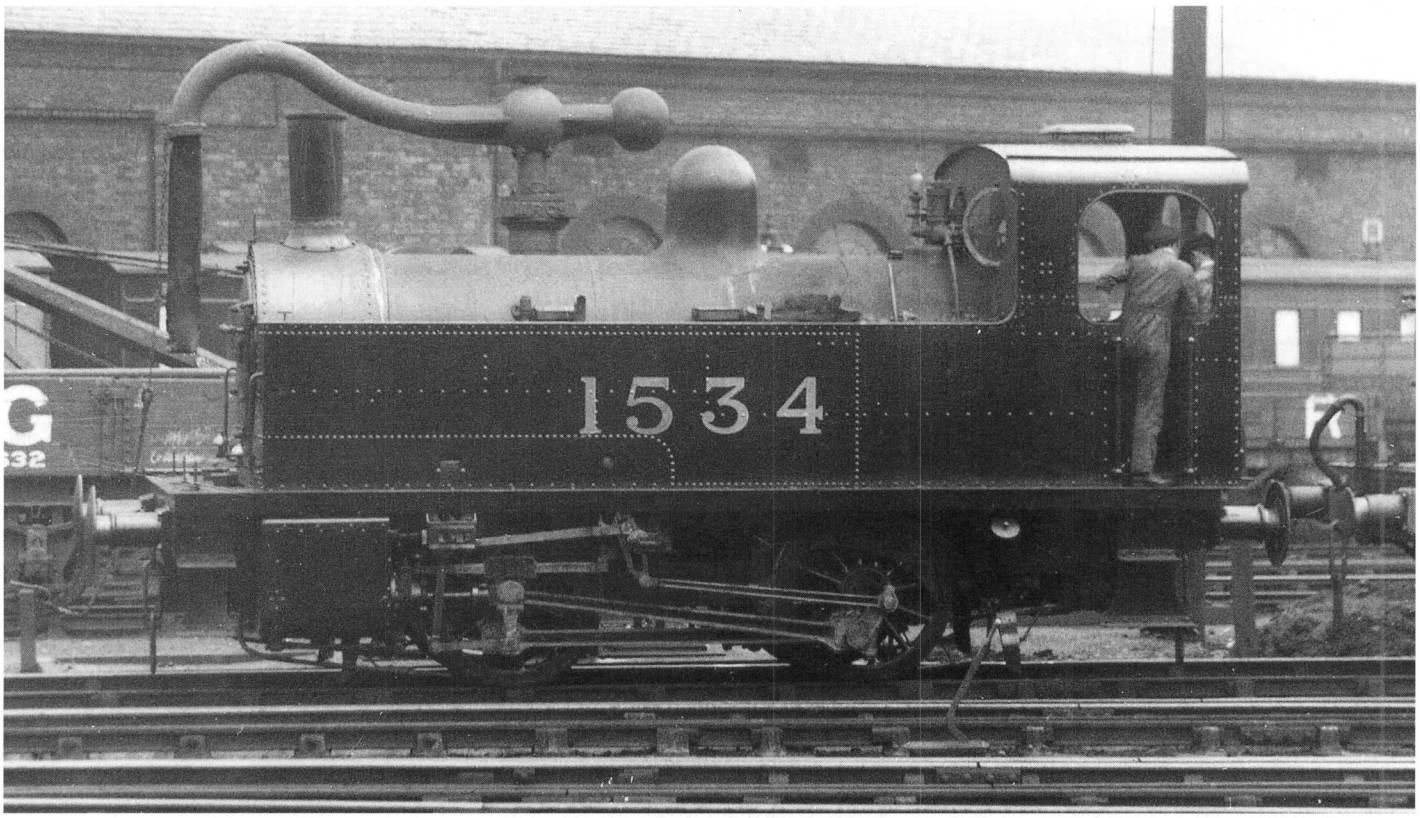
very hot in the summer on an engine that spent a lot of time standing still or moving only slowly. It was also somewhat cramped when it came to wielding the fire irons and the forward view when buffering up to wagons was a little restricted due to the length and height of the side tanks. They seem to have been fairly reliable and to have given little trouble to the fitters but, apart from that, I can add no more.

## LIVERY

The 1907 engines were turned out from Derby Works in Deeley's simplified crimson lake livery as described in the panel. The only thing that identified them as Midland Railway property was the lettering on the front buffer beam, as they did not carry the Company coat of arms.

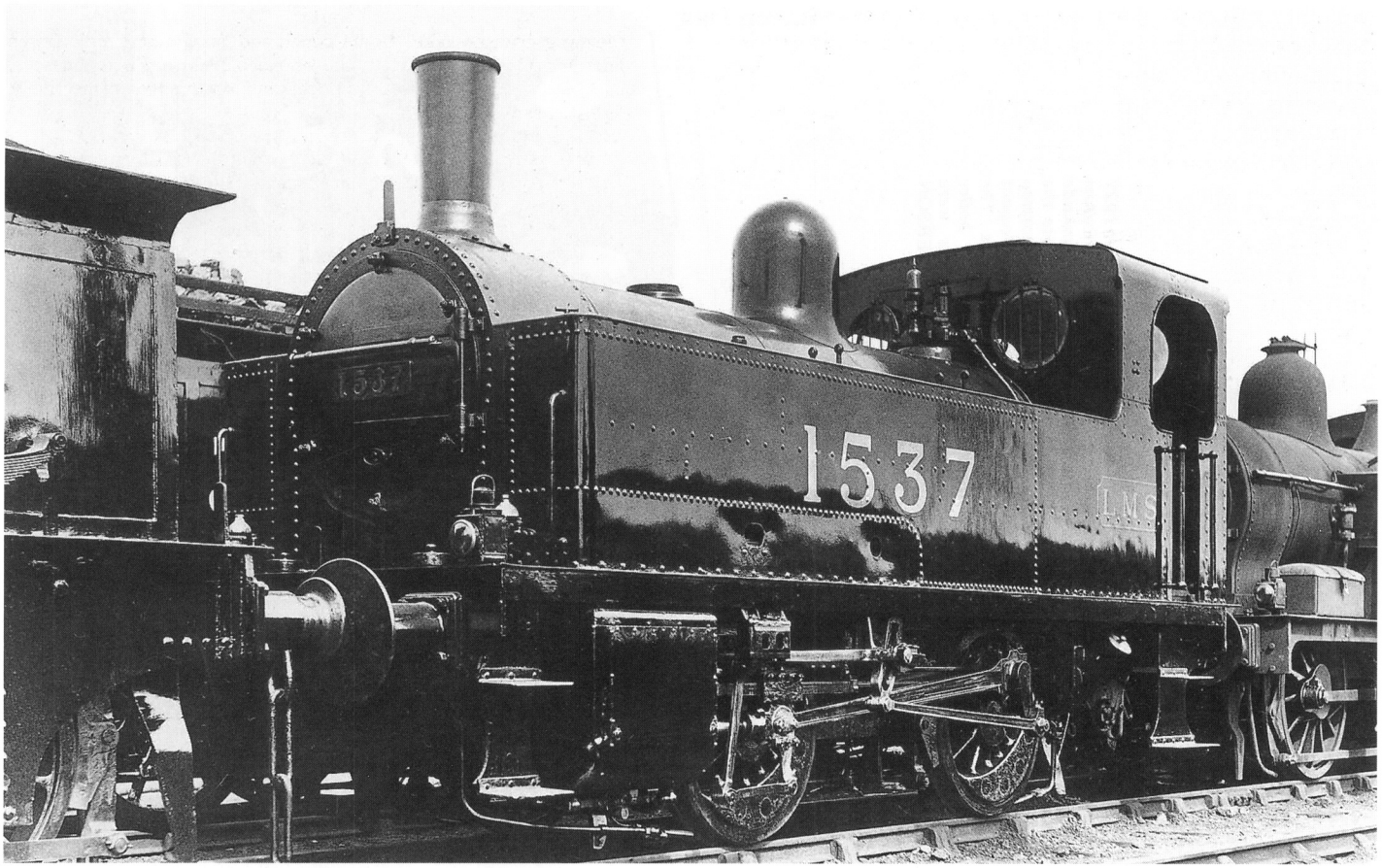
### 1907 crimson lake[6]

| | |
|---|---|
| Boiler and firebox | Clothing crimson lake. Dome cover and manhole cover crimson lake. Clothing band next to the smokebox and angle-iron next to cab black, fine lined straw on rear and front edges respectively. Whistle, safety valves and oil boxes brass. |
| Smokebox and chimney | Black. Number in raised, white painted scroll and serif characters on smokebox door plate. Handrail and lamp holder black. |
| Tanks and outside of cab | Fronts and sides of tanks, front of cab, sides of cab up to rainstrips and rear of cab crimson lake, edged black, fine lined straw inside except cab front next to tank tops and angle round firebox clothing. There was no lining around the spectacles. Furness lubricators brass, oil vessels and flanges crimson lake. Cab and tank front handrails probably crimson lake when built, possibly bare metal later. Spectacle frames brass. Tank tops, fillers, stays and fire iron holders black. Cab roof between rainstrips black. Number in 14in gold, shaded black scroll and serif characters centrally on tank sides. Makers' plate and water capacity plate on rear of cab vermilion with polished characters and borders. Positions varied – see photographs. |
| Platform and frames | Platform, sand fillers and lamp holders black. Platform angle and footstep supports crimson lake. Footsteps black. Buffer beams vermilion edged black, fine lined straw inside. Gilt shaded blue and black MR on front beam only. Buffer casings vermilion, casting beads black, fine lined straw at rear. Buffers, hooks and couplings bare metal. Outsides of frames and lifeguards black. Insides of frames, stays etc. vermilion. |
| Cylinders and motion | Cylinder clothing and front covers crimson lake. Rear covers black. Motion bare metal. |
| Wheels, brakes, sanding pipes, rear sand boxes | Black. Tyres fine lined straw inside. Axles vermilion, ends black. |
| Cab interior | Cab sides, front and rear crimson lake below waist level, grained oak effect above. Firebox backplate black. Cab roof white, rapidly darkening through cream to light brown. Shed code plate fitted to inside of spectacle plate, colour unknown. |




*The second batch of Deeley 0–4–0 tank engines was built using snap-head rivets on tanks, cab, bunker and smokebox, as is evident from this photograph of 1534 taken at Derby soon after it was completed in 1921. The outline of the tank is shown by the row of rivets curving up from just below the figure '5' and running horizontally to the front. Note the later type of valve spindle guide and access to it in the side plate below the tank. The locomotive was in the Midland Railway black paint scheme, which it had from new. It is apparent that the fluting on coupling, connecting and eccentric rods was also painted black but that the Furness lubricators on the tank fronts, the top of the whistle and the spectacles were polished.*

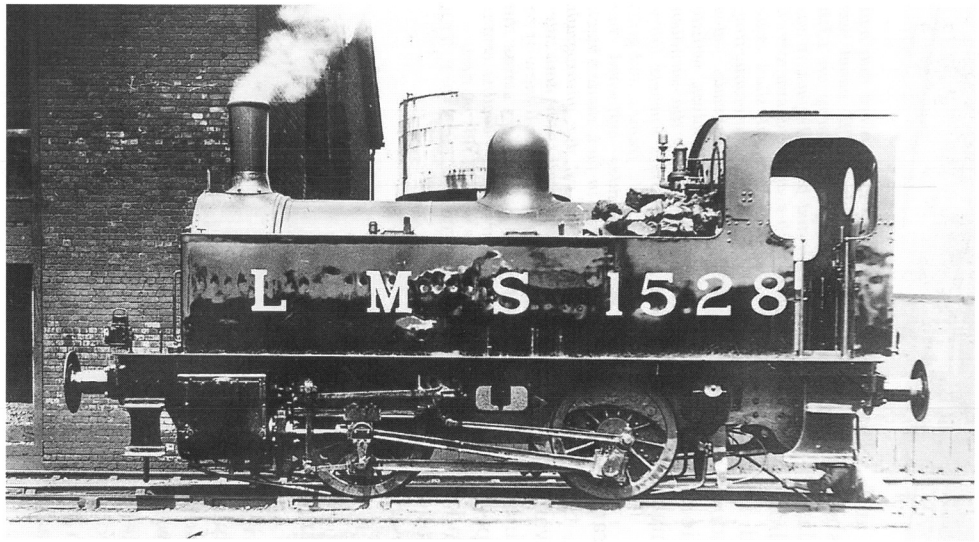
R. S. CARPENTER




*The only engine of which I am aware that had the vermilion, gold and black LMS panel was 1537. It was photographed at Derby on 13th June 1925 freshly painted black. In fact, it was almost totally black with even the characters on the smokebox door number and shed code plates as well as the fluting on the connecting, coupling and radius rods, crossheads, valve spindle guides, handrails, safety valves, whistle base and pipework painted. Only the vermilion buffer beam and casings, brass Furness lubricators, whistle top, spectacle frames, and gold numbers on the tank sides enlivened the ensemble. The latter were, in fact, shaded black and a close examination of the photograph shows the shading in relief against the tank side. No. 1537 was one of three engines I know of to have been fitted with vertical bars across the spectacle glasses for protection against errant lumps of coal, as can be seen in this picture.*
COLLECTION D. F. TEE

The crimson lake paint scheme only lasted until the engines' first repaint, when they became plain black. The later engines were painted plain black from new with unlined vermilion buffers and buffer beams, the latter carrying the same sans serif MR as before. Inside faces of the frames and the stays were vermilion, as were the axles. Fluting of the coupling, connecting and eccentric rods was painted black. The locomotive number was displayed in the same 14in transfers centrally mounted on the tank sides. Brass makers' and water capacity plates had lake backgrounds with polished metal rims and characters whilst the shed code plates that were fitted to the lower smokebox doors after about 1909 were black with white or polished metal raised characters and border. Inside the cab was black below waist level and cream above with the underside of the roof white. The latter, of course, didn't remain white for very long. Steam manifold, safety valves and injector steam pipes appear to have been painted black but Furness lubricator casings, the top of the whistle and the spectacle frames were polished brass. Tom King, who was a Midland fireman and LMS driver and whose reminiscences were published in *Midland Record*, remarked that some drivers didn't like the reflections from brass spectacle frames at night and would paint them black.

In early LMS days, the MR transfers gradually disappeared from the buffer beams. As far as I am aware, none of the engines received the individual 4½in gold LMS letters specified for goods engines in 1923 and I have only seen one, No. 1537, photographed with the 1924 cab side insignia, which is not to say, of course, that there weren't others. The latter were 2ft 8in by 11in rectangular vermilion panels with concave corners and gold borders, fine lined black inside the upper and left-hand edges, and 6in high gold, shaded black 'LMS' lettering. They were positioned just in front of the gangways. In 1927 the engines started to receive indication of ownership in the form of standard 14in gold, shaded

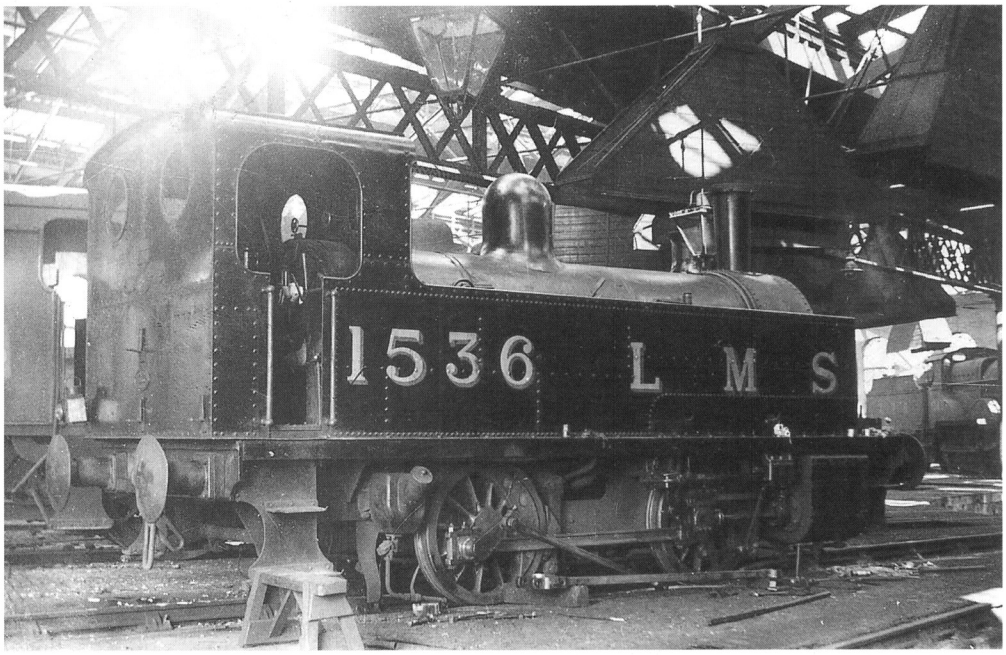



*No. 1528 is seen here freshly painted in the LMS post-1927 scheme. Since the engine was built, the Furness lubricators had been removed from the tank fronts and the tankside plates were not quite as flat as they once were! Note the fireman underneath the engine between the cab footstep supports, raking out the ashpan – one of the less pleasant tasks involved with working on steam locomotives. The amount of coal piled onto the bunker against the boiler makes it apparent why the injector steam pipes were sometimes damaged.* V. R. ANDERSON

*As was shown earlier, when in MR ownership, 1529 had a wide smokebox door seating ring fitted whilst retaining its first type of flat Deeley door. In this picture, seemingly taken after a repair to the smokebox front plate and door, it was fitted with the later type of dished door. Note the original pattern of sandbox filler lid with a knob cast into the top.* COLLECTION R. J. ESSERY

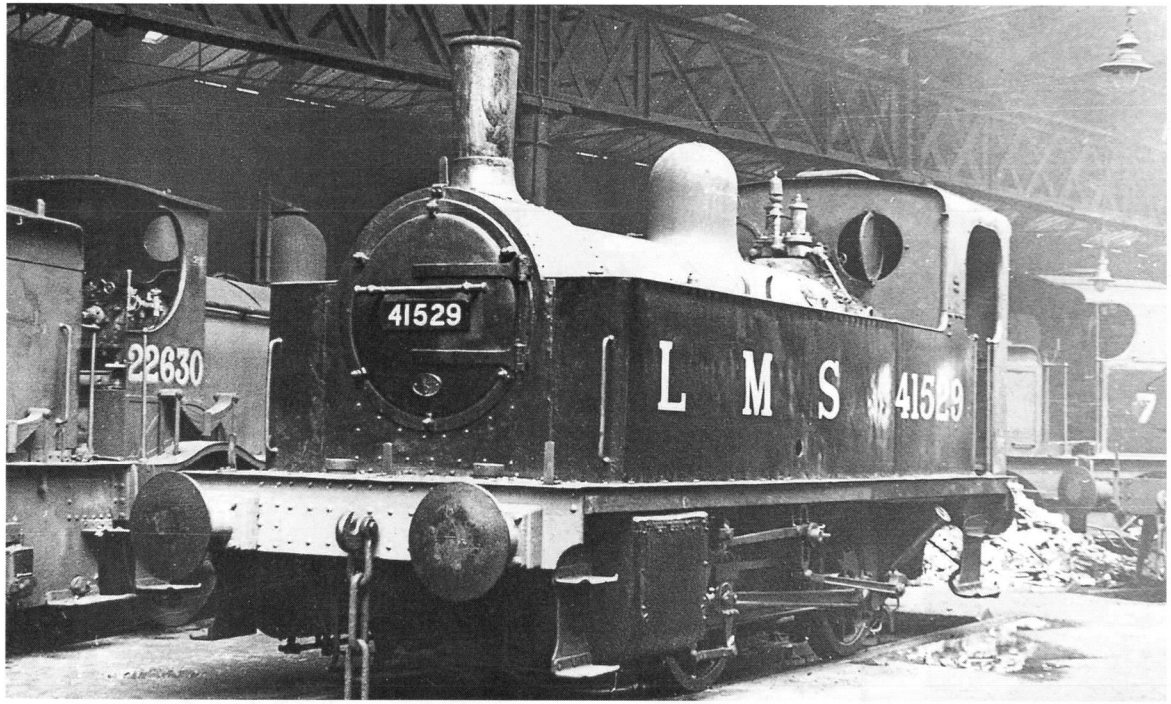
black scroll and serif 'LMS' transfers on the forward parts of the tank sides. The numbers were still applied in 14in Midland-style gold, shaded black transfers but were moved to the rear. One locomotive, No. 1529, had the stock number on the forward part of the left-hand tank side with 'LMS' behind it but on the right-hand side the positions were reversed. In the late 1930s at least three locomotives, Nos. 1530, 1533 and 1536, received yellow, shaded vermilion characters and whilst it would seem reasonable to assume that others were similarly treated, I have no evidence of it. The LMS did not renumber them.

British Railways initially did nothing except to add 40,000 to the locomotive numbers. The tank sides still



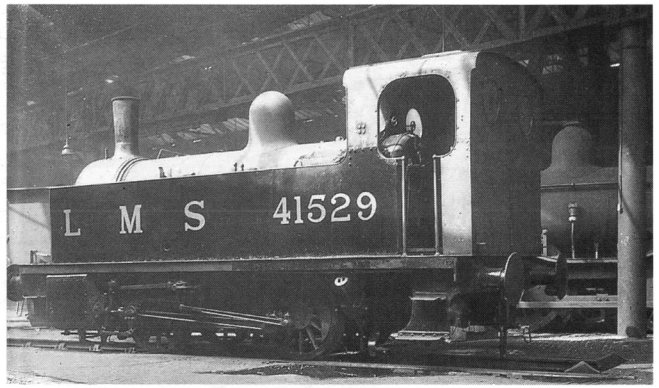

*Yellow, shaded vermilion transfers stand out in this photograph of 1536 undergoing repair in the late 1930s. In the cab, the handwheels for operating the injector steam valves by spindles through the front plate can be seen above the firebox backplate. Just inside the cab at the rear of the tank, the handle to the right-hand injector water valve can also be seen projecting from the floor. It was one of the rotating type that replaced the original pull handles. No. 1536's chimney was a late-pattern one with a base like a curved washer welded to the funnel and angle-iron fixed around the rim using snap-head rivets. The corners of the footsteps were turned up. The connecting rod had been removed and the half brass and cotter can be seen on the floor, just behind the trailing wheel.*
COLLECTION R. J. ESSERY

*During World War Two, locomotives were often just patch-painted following general repairs rather than being completely repainted. Such seems to have been the case with No. 1536 in 1944. At first glance it appears to have received new lettering and number transfers, but a close examination suggests that the characters were, in fact, hand painted over the existing ones. The vermilion shading appears to have been painted black as well. The engine had an original-pattern chimney with snap-head rivets around the join between base and funnel, long buffer casings and turned-up footstep corners.*
COLLECTION R. J. ESSERY




*Although snap-head rivets had been used on the buffer beam and smokebox wrapper of No. 41529 when it was photographed at Derby on 10th July 1948, most of the front plate was still flush riveted. It had short buffer casings and original-pattern chimney but later-style rear sandbox filler lids. To 41529's right was the last Kirtley double-frame goods engine, No. 22630, which was shortly to be renumbered 58110 and to remain in service for another three years.*

V. R. ANDERSON

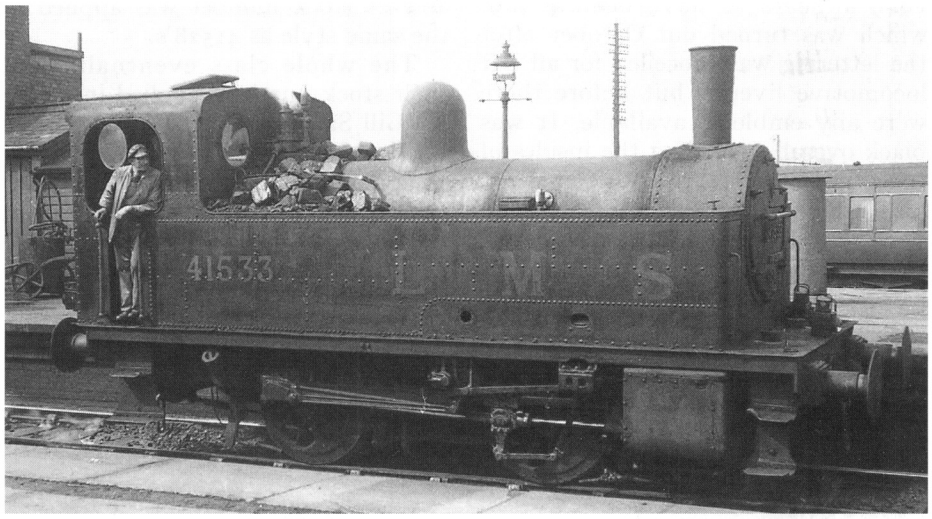



*No. 1529 was photographed at Derby in 1948, still with 'LMS' on the tank sides even though it had been renumbered as 41529. The numbers had been applied using LMS standard 12in characters rather than the 14in transfers used on the engines from 1907 and, as is quite apparent, the whole tank side had been repainted. This was because 1529 had previously had the numbers and letters transposed on its left-hand side and when it received its new number the mistake was rectified. The locomotive also had the original style of flush-riveted chimney restored to it and had different rear sandbox lids from those previously seen. Note the four bolt heads on the cab side that denoted the position of the sight feed displacement lubricator.* R. S. CARPENTER

*One of the engines to receive its BR stock number in 12in scroll and serif characters was 41532. The engine was stationed at Hasland but this photograph was taken at Nottingham during June 1949 when it was noted as undergoing a light casual repair at 'shed' from 3rd to 23rd of the month. According to the graffiti in the tank, 41532 was either 'Big Bob's Rambler' or 'Haines's Delight'.* H. M. WARE

had 'LMS' in 14in letters at the front with the new numbers in a variety of sizes to the rear, e.g., 10in on Nos. 41533, 41535 and 41536 and 12in on 41529, 41530, 41532 and 41537, probably hand painted in plain yellow. The cast smokebox door numberplates had a change of style to the sans serif Derby/Bow Works numbers rather than the old Midland style that the engines had retained from new. These were different from the Gill Sans style officially adopted by BR. Shed code, makers and water capacity plates were black with characters and rims picked out in white.

The first one to receive full BR livery seems to have been 41528 during an intermediate repair in the spring of 1949. It was not repainted fully, but merely had its tank sides patch painted and its new number applied in white 8in Gill Sans characters positioned with the rearmost one vertically in line with the front of the cab. The legend 'BRITISH RAILWAYS' was placed ahead of the numbers and in line with them in white 6in Gill Sans lettering with a space between the words so that the BR emblems then in preparation could be added later. The only locomotive to be repainted fully during




*The last type of chimney with 'bent washer' base but half-round beading on the rim can be clearly seen on No. 41533 in 1950, when the engine was still wearing 'LMS' on its tanks. Although the number had been applied in plain yellow 10in characters, the lettering seems on close inspection still to have been yellow, shaded vermilion beneath a layer of dirt. This was unusual as the vast majority of locomotives had any shading painted over black when their BR numbers were applied. Note the replacement rear sandbox filler lid and austerity fuel mixture of coal and briquettes.* D. L. F. GILBERT

*No. 41535 was photographed at Derby on 31st August 1949, still with 'LMS' on the tank sides. This engine had snap-head rivets on the smokebox front and on the join between the chimney and its base, the chimney itself having wider than usual beading around the rim. The numbers on the side were smaller than those seen in the photograph of No. 41529 in early British Railways days and appear to be standard LMS 1927-1948 10in transfers. The front coupling was of the screw type, which was not often seen on these engines,*

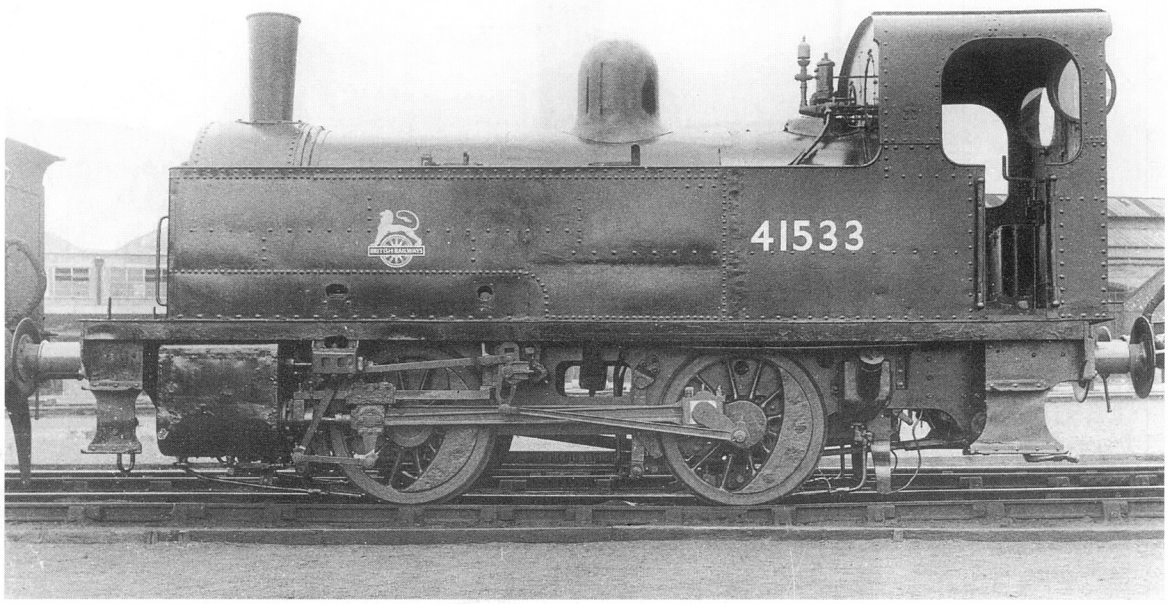
*The only '1528' Class engine to have 'BRITISH RAILWAYS' on its tank sides was, as far as I am aware, No. 41528, seen in this photograph at Staveley on 15th October 1950. It had the original rear sand box filler lid and short buffer casings but snap-riveted smokebox wrapper and front plate plus 'bent washer' chimney base. The rim of the chimney, however, was still edged with half-round beading.* J. W. PERKINS

1949 appears to have been 41529, which was turned out October after the lettering was cancelled for all BR locomotive liveries but before there were any emblems available. It was black overall, including the insides of the frames and axles, with signal red buffer beams and buffer casings and bare metal draw hooks, couplings, buffers, motion and whistle. Interior of the cab roof was initially white and its stock number was applied in the same style as 41528's.

The whole class eventually had their stock numbers applied in cream 8in Gill Sans characters and wore the smaller size of the first BR 'monocycling lion' emblems, introduced at the end of 1949, half way up the tank sides. There were still engines to be seen carrying LMS markings for some time though and it wasn't until about 1953 that 41536 was repainted in BR style. The usual position for the emblems was directly above the front wheels but No. 1532 had them further back such that the rear edges were in line with the expansion link access holes. Others had them slightly further forward so that the centres were directly above the expansion links, examples being 41528, 41529 and 41534. The numbers on the on both sides. The final addition to the livery was when the survivors had overhead electrification warning flashes applied to their tank fronts in 1960 or 1961, although it would appear that 41528 had them removed at some stage before it was withdrawn.

The above descriptions are largely based on photographic evidence, so it is quite possible that there were variations of which I am not aware. If anyone has any further information, therefore, I would appreciate it if they would share it via the editor or myself for inclusion in this magazine.

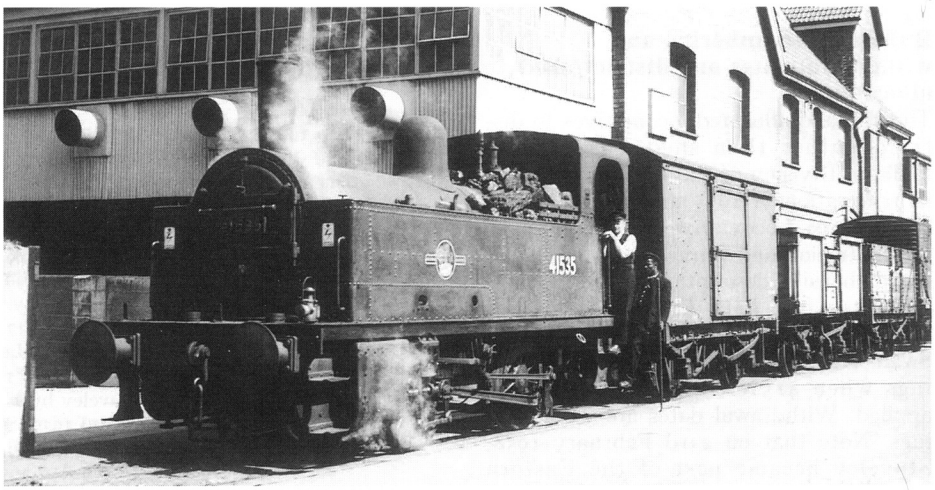
*No. 41535's livery was the most common mid-1950s style, as described in the text, and it still had the original type of sandbox filler lid.* COLLECTION R. J. ESSERY



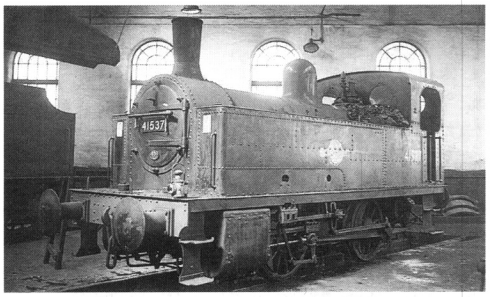

*Shortly after repainting in full British Railways livery, No. 41533 was photographed at Derby on 21st May 1954. It had the first style of BR emblem positioned on the tank side directly above the front wheel and was fitted with a late-pattern chimney. The shape of the cab footstep supports on the second batch of engines can be clearly seen in this view and it is apparent that the left-hand toolbox had been removed. The extent of the coal bunker is obvious from the rivet pattern at the rear of the tank. Note also the slightly different routeing of the steam pipe from the safety valve manifold and the later type of sandbox filler lid.*
R. J. BUCKLEY

majority were positioned as already described but Nos. 41530, 41531 and 41537 had them further back so that the 5s were vertically in line with the cab front.

As far as I am aware, only three of the '1528s' received the post-1956 'ferret and dartboard' BR crests and all three had them in different places. On No. 41528 they were positioned with the centres above the valve spindle guides, 41535 had them slightly further back such that the front edges were above the guides, and 41537's were directly above the expansion links. The only one to have an heraldically incorrect right-facing lion on its right-hand tank side was 41537, which received it early in 1957 but by 1960 had left-facing lions




*As far as I know, just one engine had coal rails fitted along the top edge of its bunker. No. 41535 was photographed at Merchants Road, Gloucester, in June 1962 with coal rails, 'bent washer chimney base, electrification warning flashes, turned-up footstep corners and replacement rear sandbox filler lids.*
W. POTTER




*The only engine I know to have had the 'ferret and dartboard' crests positioned above its expansion links was 41537. It also had the number further back than usual, the '5' being in line with the cab front rather than the more normal arrangement where the last figure was in that position. As one of the post-1960 survivors, it also had overhead warning flashes on the tank fronts when this picture was taken. Although built with flush rivets on its buffer beam, it had later been repaired using snap-head ones but had managed to retain its original type of chimney. The shape of the right-hand buffer head is unusual, having a slight reflex curve at the rim.*
COLLECTION R. J. ESSERY

*No. 41528's BR crests were positioned further forward than usual, as shown in this 1959 photograph. It had a late-style chimney with half-round beading on the rim, short rear buffer casings and replacement rear sandbox filler lids. Its water capacity plate was higher up than usual above the lamp irons on the back of the cab. Note the circular cover above the makers' plate that would be removed to allow withdrawal of the regulator spindle.*
R. J. ESSERY

## APPENDIX

### Building, renumbering and withdrawal dates and district/shed allocations

The Midland allocated locomotives to districts rather than sheds, as did the Midland Division of the LMS prior to the reorganisation of 1935 under the 'Motive Power Area Locomotive Supply, Repair, Concentration and Garage Scheme'. For a comprehensive description of the reorganisation see the *LMS Engine Sheds* series by Hawkins & Reeve published by Wild Swan. Re-numbering dates are week endings when 415XX BR numbers were applied. Withdrawal dates are week endings. Note that on 23rd February 1958, Staveley became part of the Eastern Region of British Railways and Gloucester part of the Western Region. I can't pretend to have all the allocation details for these engines and if any reader can expand on them I would appreciate it.

| *Engine* | *Built* | *Allocated* | *Re-numbered* | *Withdrawn* |
|---|---|---|---|---|
| 1528 | Aug 1907 | Staveley. Hasland by 14 Apr 1914. Staveley by 1 Dec 1920. Stored out of use 24 Jan 25 Jul 1955 and July 1965–Apr 1966. | 2 Apr 1949 | Apr 1966 |
| 1529 | Sep 1907 | Staveley, Hasland by 14 Apr 1914. Staveley by 1 Dec 1920. | 10 Jul 1948 | 22 Apr 1961 |
| 1530 | Oct 1907 | Gloucester. Hasland by 14 Apr 1914. Staveley by 1 Dec 1920. Upper Bank by 1 Jan 1927. Gloucester 28 Jun 1928. Hasland by 1 Jan 1929. Burton 23 May 1936. Gloucester 17 Jun 1944. | 8 May 1948 | 4 May 1957 |
| 1531 | Nov 1907 | Burton. Gloucester by 1 Dec 1920. Hasland by 1 Jan 1927. Toton Dec 1932. Leeds 13 Apr 1935. Hasland 24 Aug 1935. Staveley 30 Jul 1955. | 18 Feb 1950 | 1 Jun 1963 |
| 1532 | Dec 1907 | Burton. Staveley by 1 Dec 1920. Hasland 12 Jul 1930. Sheffield 29 Jan 1944. Hasland 7 Jul 1945. Derby 2 Apr 1955. Burton 9 Apr 1955. | 8 May 1948 | 18 Mar 1961 |
| 1533 | Jul 1921 | Staveley then Hasland. Staveley by 1 Jan 1929. Burton (loan) 27 Dec 1947. Staveley 2 Oct 1948. Gloucester (loan) 28 Jul 1951. Staveley 2 Aug 1952. Stored out of use 4–12 Aug 1955 and September 1965 Apr 1966. | 21 Jan 1950 | Apr 1966 |
| 1534 | Aug 1921 | Staveley then Hasland. Staveley by 1 Jan 1929. Gloucester 10 Sep 1955. Staveley 3 Dec 1955. Normanton 17 Dec 1955. Stored out of use 25 Apr–9 May 1955 and 18 May–8 Sep 1955. Derby 10 Nov 1956. | 9 Oct 1948 | 25 May 1957 |
| 1535 | Feb 1922 | Staveley. Derby Sep 1923. Burton by March 1930. Derby 17 Jun 1944. Gloucester 4 May 1957. Swansea East Dock Sep 1963. Neath Jun 1964. | 3 Jul 1948 | 21 Sep 1964 |
| 1536 | Mar 1922 | Staveley. Burton Nov 1923. Rowsley (loan) 5 May 1956. Burton 15 Sep 1956. | 24 Apr 1948 | 4 Mar 1961 |
| 1537 | May 1922 | Staveley. Burton Nov 1923. Gloucester by 1 Jan 29. | 29 May 1948 | 1 Sep 1963 |

### NOTES IN TEXT

1. One reason for the Midland buying 'long boiler' engines, in which all the wheels were grouped close together between the rear of the smokebox and front of the firebox, as late as 1851 was possibly because their short wheelbase made them suitable for some sharply curved colliery sidings between Derby and Leeds.
2. When originally built, the designation 'J boiler' did not exist. The boilers weren't classified until after the introduction of the H boiler in 1903.
3. Another of the '1322' Class was withdrawn in 1907 but then a further three of the J boilers were made in 1912 and it wasn't until 1921 that any more of them were broken up.
4. This was also known by enginemen as the 'boiler face' or 'boiler front'. I can find no evidence of it ever being called the 'backhead' by railway staff, the term seemingly one used only by lay enthusiasts and modellers.
5. There were other advantages of Walschaerts' valve gear, such as constant lead for all cut-offs, but none that would have really affected, or could have been evaluated on, the shunting tanks.
6. For a discussion on the shades described as 'crimson lake' and straw' see *Midland Style* by George Dow, published by the Historical Model Railway Society, *An Illustrated Review of Midland Locomotives Volume 1* by Essery and Jenkinson, published by Wild Swan, and Andy Brown's article in the preview issue of *Midland Record*.

***No. 41528 had been withdrawn six months before this picture was taken when it was awaiting disposal. The smokebox number plate was the type cast at Derby Works with sans serif but not Gill Sans figures and the buffer beam had been repaired using snap-head rivets.***

R. J. ESSERY

# STEEL RAILS

by GRAHAM WARBURTON

*The subject of permanent way has received little attention so far and I am therefore pleased to publish this short article by Graham Warburton. The earliest record of Midland Railway practice dates from 1832 when the Leicester & Swannington Railway opened. This company used wrought-iron rails of 'fish-belly' pattern some 15ft in length.*

*Later, wrought-iron rails of double-headed pattern were in use on the Midland Counties Railway but the Birmingham & Gloucester employed flat-bottomed wrought-iron rails spiked to the sleepers. By the 1850s, the Midland were using round-topped rail on both the main lines and branches. It was 20ft in length and the idea was that it could be turned over to increase its life. The next major development was to use steel for the rails and this extract by A. B. Longbottom describes the development and early trials of steel rails.*

### THE FIRST STEEL RAIL
by A. B. Longbottom

The question as to whom belongs the honour of having laid down the first steel rail in this country has given rise to much discussion, but a much favoured opinion is that this distinction should be accorded to Robert M. Mushet.

Mushet's rail was rolled by the Ebbw Vale Iron Company from his Bessemer and Mushet ingots, and was cast at the Forest Steel Works, Coleford. He was directed to send one of these rails to Derby, and early in 1857 it was placed *in situ* at Derby Station. In December 1867, Mushet wrote the then Chief Engineer, Mr. John S. Crossley, inquiring how many trains passed over the rail daily, and whether the Midland Railway Company would sell the rail to him. Mr. Crossley replied that quite 250 trains passed over it, but that number might at least be doubled for detached engines and tenders. He, however, would not be inclined to recommend the sale of the rail, but if it was ever taken out Mushet should have the refusal of it. The inventor wrote Mr. Crossley again in 1873, when that gentleman replied that unfortunately the rail had been taken out and used up again before the receipt of the inventor's letter. This is described by Mushet's advocates as an act of vandalism on the part of the Midland Railway Company as 'this rail, as the first steel rail ever laid down, deserved a better fate than to be "used up".'

I have found a somewhat remarkable confirmation of the foregoing in Knight's *Dictionary of Mechanics*, quoted in a volume entitled *Railway Adventures and Anecdotes*, edited by Richard Pike, and published in the early 'eighties. This extract is as follows: 'The first steel rail was made in 1887 by Mushet at the Ebbw Vale Iron Company's works in South Wales. It was rolled from cast blooms of Bessemer steel, and laid down at Derby, England, and remained 16 years, during which time 250 trains and at least 250 detached engines and tenders passed over it daily. Taking 312 working days in each year, we have the total of 1,252,000 trains and 1,252,000 detached engines and tenders which passed over it from the time it was first laid before it was removed.

'The substitution of steel for iron, to an extent rendered possible by the Bessemer process, has worked a great and abiding change in the condition of our ways, giving greater endurance both in respect of wear and in resistance to breaking strains and jars.

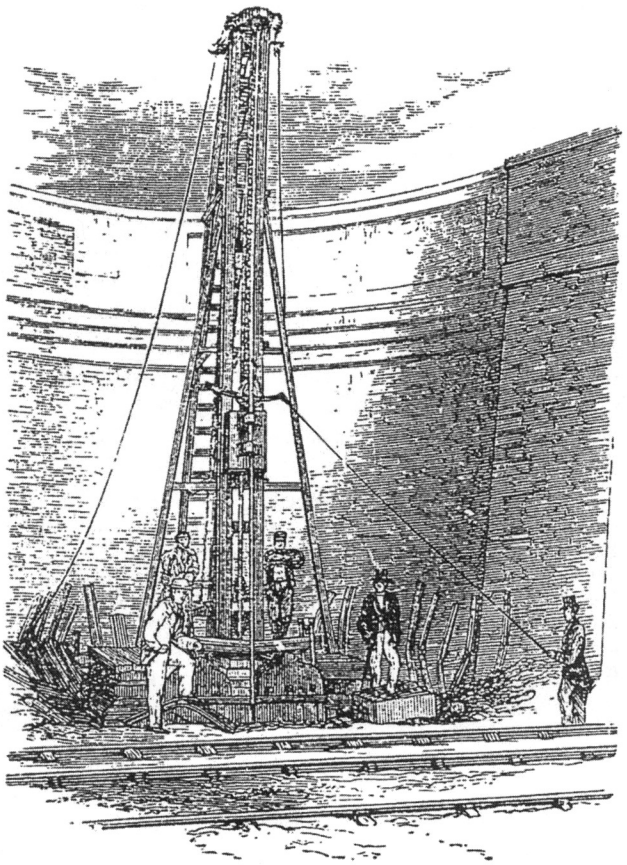
'Two steel rails of 21ft in length were laid on May 2, 1862, at the Chalk Farm Bridge, side by side with two ordinary rails. After having outlasted 16 faces of the ordinary rails, the steel ones were taken up and examined, and it was found that, at the expiration of three years and three months, the surface was evenly worn to the extent of only a little more than a quarter of an inch, and to all appearance they were capable of a great deal more work. The result of this trial was to induce the L&NW to enter very largely into the employment of steel rails.' It is a thousand pities that Mushet's rail was scrapped.

### FALLING WEIGHT TEST

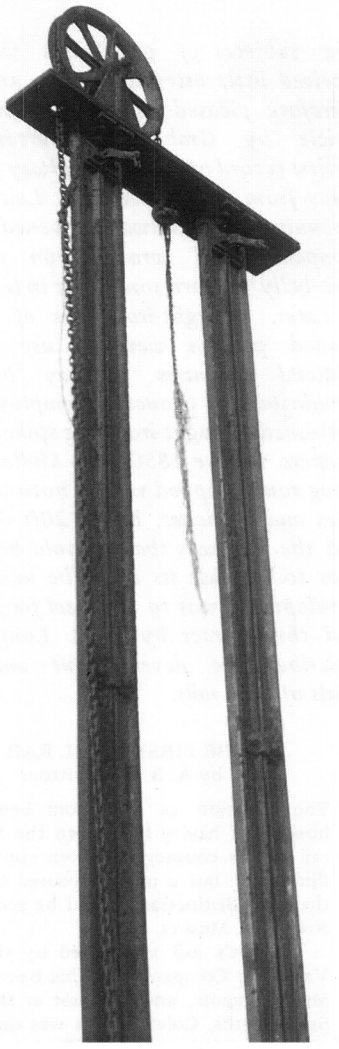
Bullhead rails were subjected to several tests as laid down in the British Standards before being accepted from the manufacturer by a railway company. Their chemical composition had to fall within certain limits with a complete analysis furnished for each rolling. This analysis was made from drillings taken from the rail.

Any straightening had to be done by pressure and not by hammering. A rolling margin of ± ½% above the calculated weight was permitted.

The whole of the rail length had to be of uniform section throughout, conforming to the template and perfectly



*This picture of the Midland Railway rail testing machine at Derby was taken in February 1971. It is not clear when it was made but clearly it dates from the 19th century.* L. G. WARBURTON



*A view of the top of the rail testing machine.* L. G. WARBURTON

sound and straight. Recommended British Standard lengths were 30, 36, 45 and 60 feet at a temperature of 60°F. A rail had to be no more than ± 3/16in above or below the length specified to be accepted.

Standards for a tensile test were also laid down, requiring an ultimate tensile strength of not less than 40 tons per square inch, nor more than 48 tons per square inch, with an elongation of not less than 15 per cent.

A falling weight test was also specified which required a 5ft length of rail to be placed in a horizontal position, with the bullhead uppermost, upon two iron or steel supports resting on a solid foundation, and so placed that their centres were 3ft 6in apart, the upper surfaces of the supports being curved to a radius of 3 inches.

The test comprised two blows delivered midway between the bearings from a falling iron weight of 2240lbs, the striking face of which was rounded to a radius of not more than 5 inches.

The height of the drop varied dependent upon the various sections of rail, as shown in the table. The blows had to be sustained without fracture and the rail show a deflection within the limits given.

Should a length of rail fail to comply with the test, then two further rails from the same cast were selected, cut to a 5ft length and tested. The acceptance or rejection was decided by the result of the three tests – if two rails failed, then the entire cast was rejected.

The photographs taken in February 1971 show the Midland Railway rail testing machine at Derby. It was manufactured in the Signal Works from patterns made in the Signal Works Pattern Shop and cast in the Carriage and Wagon Works Foundry.

It appears that the weight was lifted by a hand crane type windlass and released by a disengaging hook.

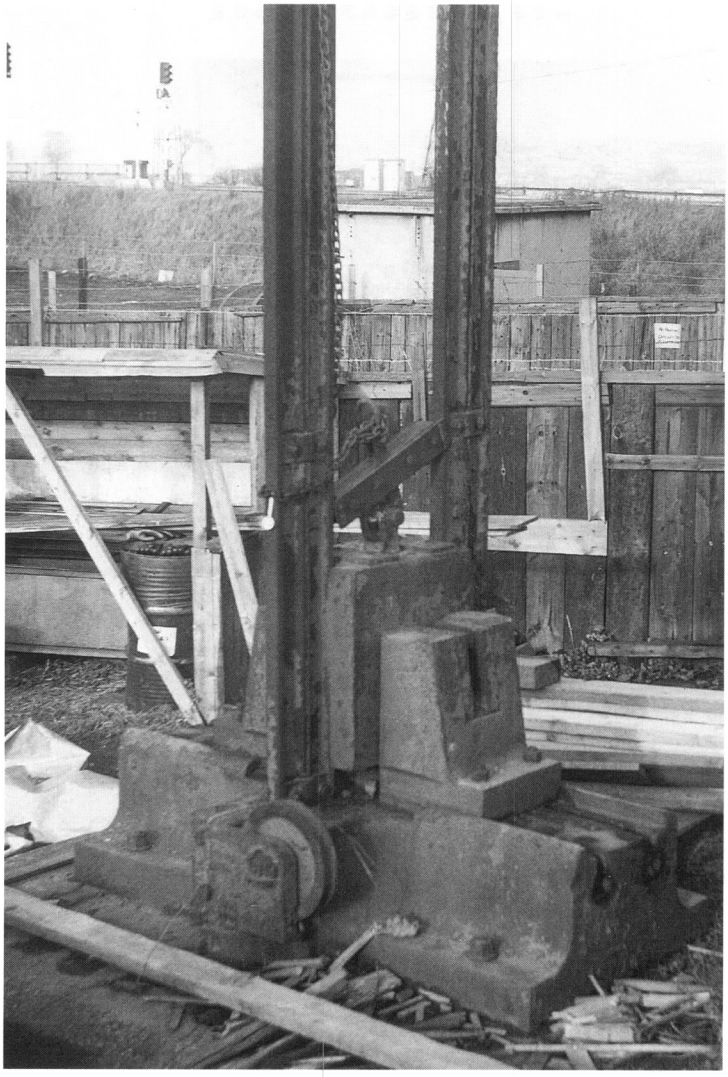
**References**

Mr. W. J. Sadler, MR, LMS & BR S&T engineer.

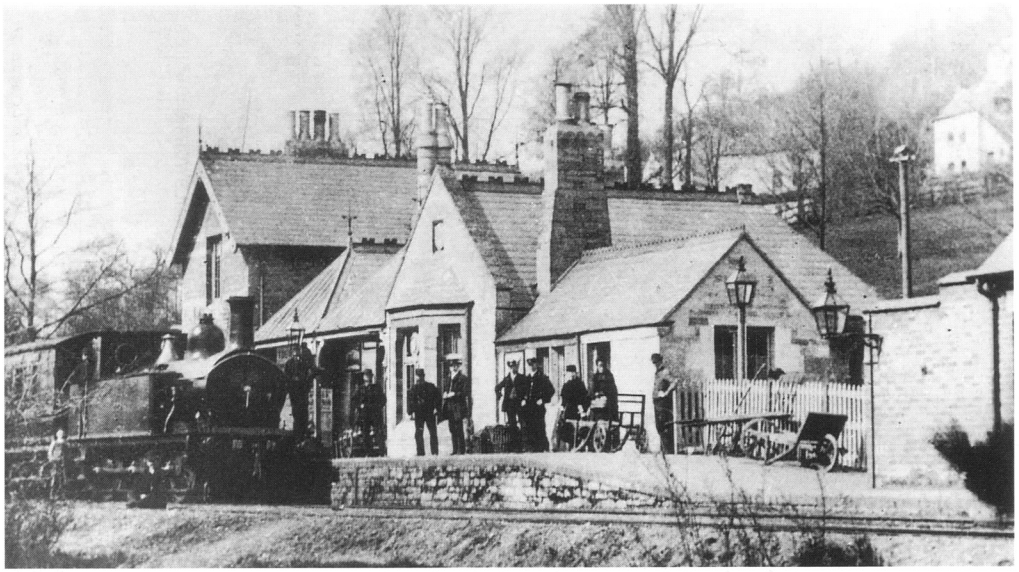
Tyers – Railway Signal and Permanent Way Engineers Pocket Book c.1920.

## FALLING WEIGHT TEST.

| No. of "B.S." Section and Nominal Weight of Rails. per yard in lbs. | 1st Blow | | | 2nd Blow. | | |
|---|---|---|---|---|---|---|
| | | Deflection. | | | Deflection. | |
| | Drop. | From | To | Drop | From | To |
| | Feet. | Ins. | Ins. | Feet. | Ins. | Ins |
| 60 | 5 | 1 | 1 5/16 | 10 | 3 | 3 3/4 |
| 65 | 5 | 1 | 1 1/4 | 12 | 3 | 3 1/4 |
| 70 | 6 | 1 | 1 5/16 | 12 | 3 | 3 3/4 |
| 75 | 6 | 1 | 1 5/16 | 12 | 3 | 3 3/4 |
| 80 | 6 | 7/8 | 1 3/16 | 15 | 3 | 4 |
| 85 | 6 | 7/8 | 1 3/16 | 15 | 3 | 4 |
| 90 | 7 | 7/8 | 1 1/4 | 20 | 3 | 4 1/4 |
| 95 | 7 | 7/8 | 1 3/16 | 20 | 3 | 4 1/4 |
| 100 | 7 | 7/8 | 1 3/16 | 20 | 3 | 4 1/4 |



*The base of the rail testing machine, which appears to have been still in use when photographed in February 1971.* L. G. WARBURTON



*The Regulations of Railways Act 1889 required that all passenger trains had to have a continuous brake on all vehicles, which, of course, meant that the locomotive had to be fitted with a vacuum or Westinghouse brake. When the Act became law, not all Midland Railway lines met the requirements, and I believe that some of the branches in Gloucestershire were among those that had to be 'upgraded'. Close examination of this picture suggests that the unidentified six-wheeled coupled tank engine, to quote the contemporary description, was a steam brake only locomotive. If this is correct, then the date of this picture cannot be later than 1890.*

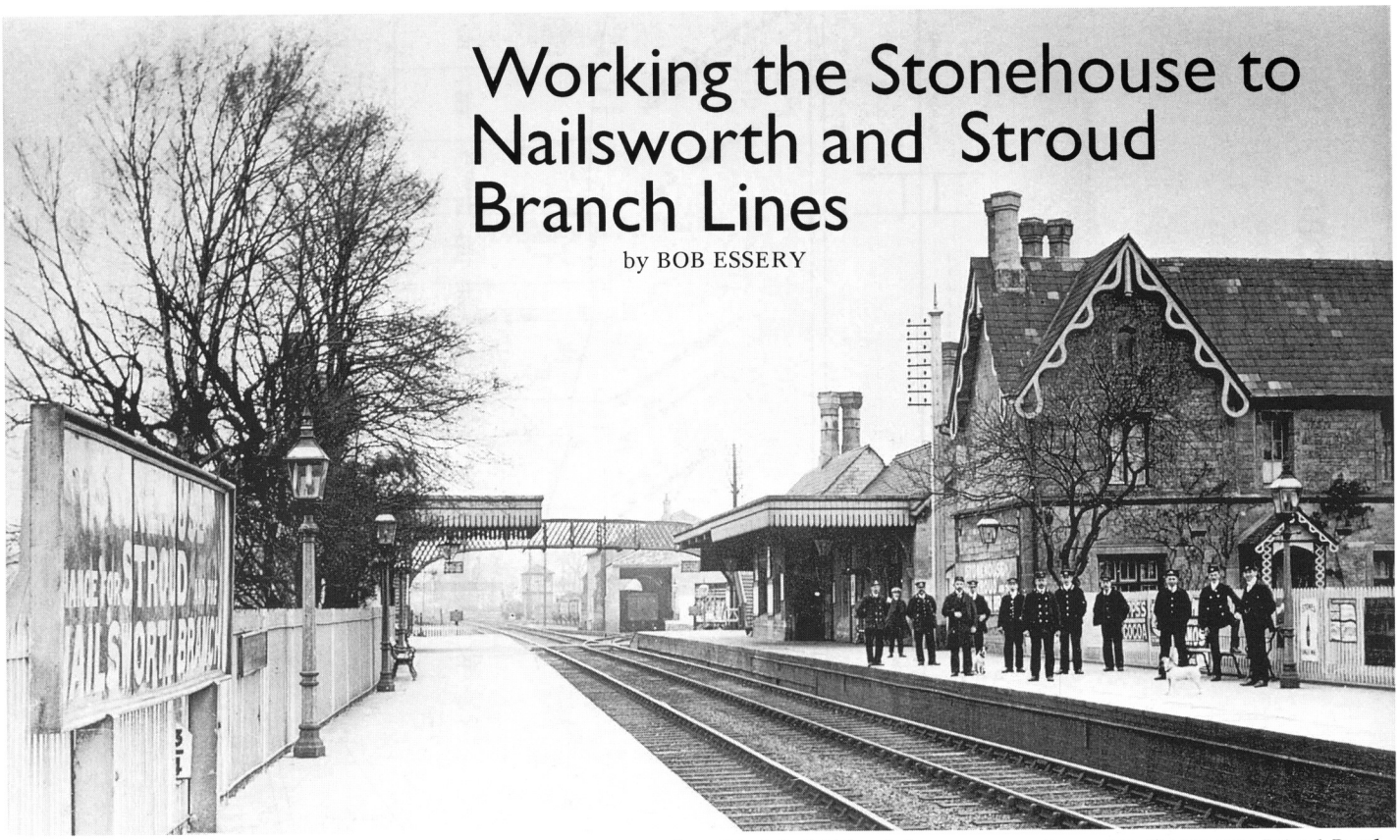
LENS OF SUTTON

*This picture of No. 1364 was taken after 1907, when it was renumbered but prior to 1914. The use of a six-coach train made up of six-wheel carriages suggests either a market day or Saturday working.*

L&GRP

# Working the Stonehouse to Nailsworth and Stroud Branch Lines

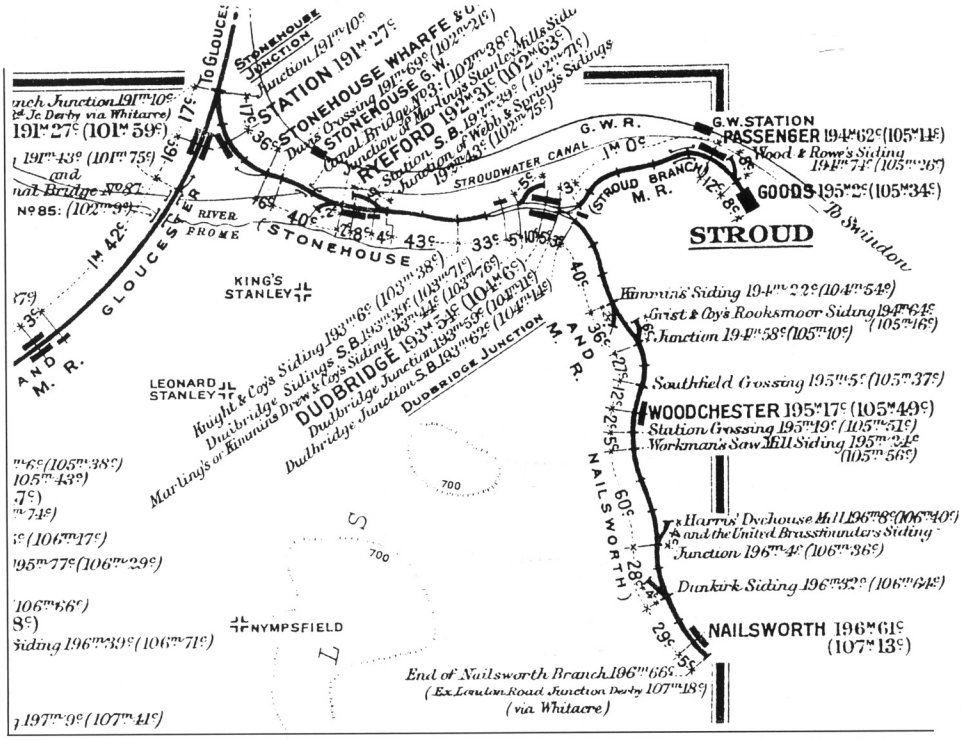
by BOB ESSERY



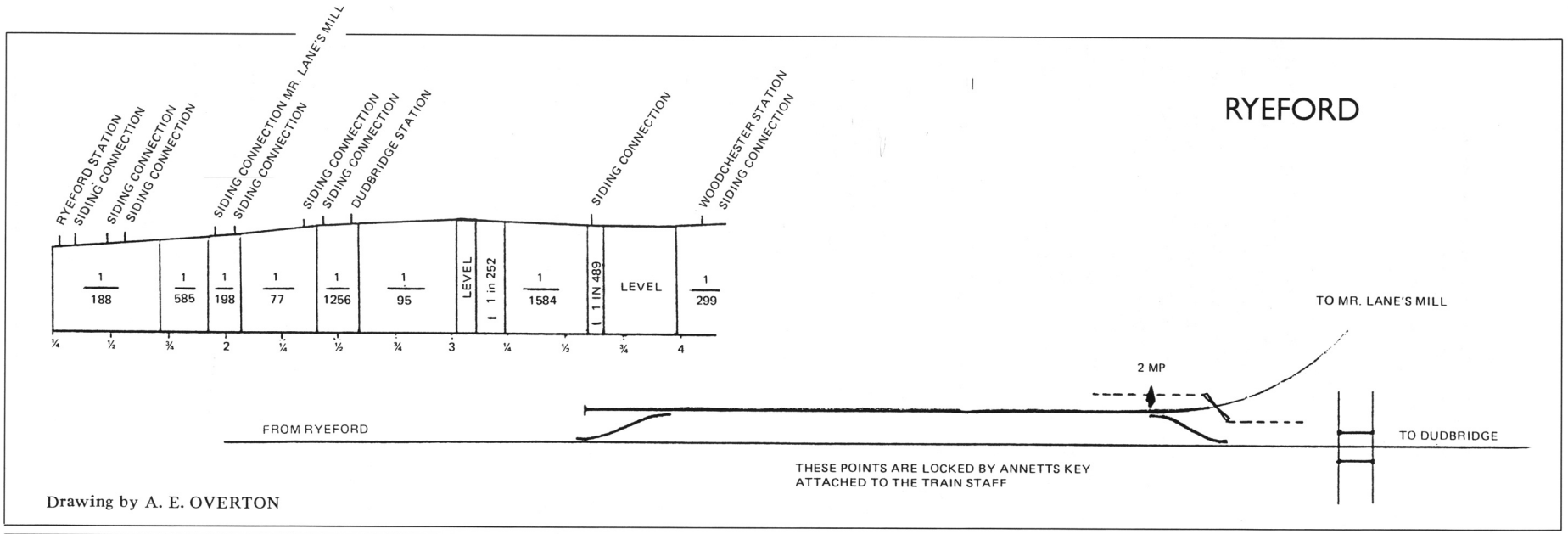

*Stonehouse station on the Bristol & Gloucester Railway was opened on 8th July 1844 and the name was changed to Stonehouse Bristol Road on 17th September 1951. The station was closed to passenger traffic on 4th January 1965 and to goods traffic one year later on 3rd January 1966. The station had two platforms on the main line and one on the branch to Nailsworth and Stroud, which was off the picture to the right. This Midland Railway period view was taken looking towards Gloucester. The station nameboard reads 'Stonehouse, change for Stroud and the Nailsworth Branch'.* LENS OF SUTTON

The popular conception of the Midland Railway was probably of long coal trains running from the coalfields of the Midlands and the north along the main line to London, or express passenger trains with their locomotives and coaches painted in Crimson Lake. For some reason the Midland Railway has never appeared to be closely associated with branch lines although, of course, they did exist on the Midland system. In many respects the two branches that are the subject of this article, together with the Dursley branch, featured in the Preview edition, are more akin to the popular conception of a Great Western Railway branch line. A history of these branches has already been written by Colin Maggs (Oakwood Press) so rather than repeat much of what has been written, I have concentrated on the working of the line.

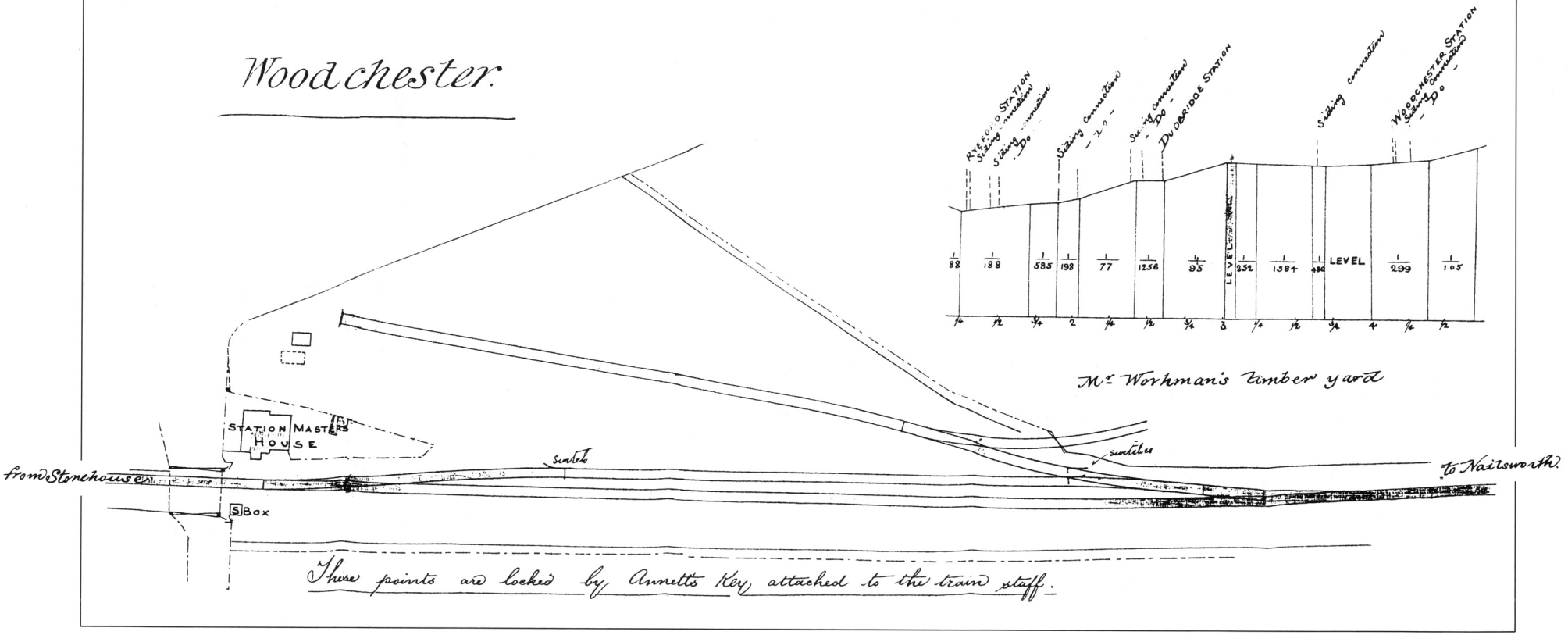
The branch from Stonehouse to Nailsworth, the older of the two lines, began with the Stonehouse & Nailsworth Railway Act 1863. Nominally an independent company, the line was worked under a lease from the opening




*This extract from a Midland Railway Distance Diagram has been included to show the relationship of both branch lines to the Bristol and Gloucester line at Stonehouse Junction. Note that the division of this map is such that the signal box is not shown, but its position can be seen on the OS map on page 60.*




Drawing by A. E. OVERTON



by the Midland Railway, being vested in the Midland by Act of 1878 with effect from 1st July of that year. Later the company was dissolved under the terms of the Midland Railways Act 1886. The line from Stonehouse to Nailsworth was opened for goods traffic on 1st February and for passenger traffic on 4th February 1867. Closure to passenger traffic came on 16th June 1947 and to all traffic on 1st June 1966. Prior to the installation of the block telegraph between Stonehouse and Dudbridge in 1885, all trains were worked by train staff without tickets, but thereafter it was by staff and ticket. The section between Dudbridge and Nailsworth was worked by train staff, which was square in shape and coloured blue. The signalman at Dudbridge Junction signal box was the person appointed to deliver the staff to the driver prior to a train running to Nailsworth and to receive it when the train returned.

The branch to Stroud was authorised by the Midland Railway (Additional Powers) Act 1880 and Midland Railway (Additional Powers) Act 1882. The line was opened to goods traffic on 17th November 1885 and to passenger traffic on 1st July 1886. In 1917 there was a temporary closure to passenger traffic between 1st and 29th January and the line finally closed to passenger traffic on 16th June 1947, and to goods traffic on 1st June 1966. The branch was worked by train staff, triangular in shape, coloured red. Again the signalman at Dudbridge Junction was the person appointed to deliver and receive the staff.

In terms of train working, the Stroud branch was simple: once the train staff had been given to a driver, no other train could run onto the branch until the staff had been returned. This method of working was known as 'Single Lines of Railways worked by only one engine in steam or two or more engines coupled together'. Exactly the same arrangement applied to the line between Dudbridge Junction and Nailsworth, but between Stonehouse and Dudbridge Sidings the line was worked by staff and ticket, a method of working that allowed more than one engine on the branch. Ryeford was a block post but not a staff station; this allowed a train for Stroud to depart from Stonehouse and, as soon as it departed from Ryeford and entered the section in advance, another train could depart from Stonehouse, but this train could not go beyond Ryeford until the first train had arrived at or passed Dudbridge Sidings. The line between the signal boxes at Dudbridge Sidings and Dudbridge Junction was double, so single-line working did not apply. At Dudbridge Junction the lines divided and, since both were worked by one engine in steam, there could never be more than one engine on either branch. It was a very safe method of train working.

Where there were sidings connected with running lines at stations where there was no signal box, special arrangements applied. The usual method was by a stage or ground frame, which was controlled or unlocked by the staff key. Connections, some to private sidings, listed in the LMS General Appendix to the Working Time Tables of March 1937 are given below:

| | | |
|---|---|---|
| Stonehouse Wharf | Between Stonehouse and Ryeford | Ground frame, controlled by staff key. |
| Marling Siding | Ryeford | Stage, controlled by staff key. |
| Loop and station yard | Stroud | Stages, controlled by staff key. |
| Stroud Gas Works | Dudbridge and Stroud | Stage, controlled by staff key. |
| Woodchester station sidings | Woodchester | Stage, controlled by staff key. |
| Grist's Siding | Woodchester and Dudbridge | Stage, controlled by staff key. |
| Dunkirk Siding | Woodchester and Nailsworth | Stage, controlled by staff key. |
| Newman, Hender & Co's Siding | Woodchester and Nailsworth | Stage, controlled by staff key. |
| Nailsworth Goods Yard | Nailsworth | Stage, controlled by staff key. |
| Station Loop and Sidings | Nailsworth | Stage, controlled by staff key. |

The Midland Railway 1904 Appendix (an extract is shown here) provides details of some of the instructions that applied on the branch. They also appear in later editions. In order to illustrate the arrangement for connecting a siding to the running line, I have included a drawing by Tony Overton, which is based upon my copy of the original held at the National Archive at Kew. Dated 1883, it shows the connection to Mr. Lane's Mill, which may have become Marling Siding noted above. The drawing shows a road crossing the railway and a loop with two connections to the running lines. The Annetts key that was attached to the train staff unlocked the points. Note that whilst the loop line was owned by the Midland Railway, the line beyond the gate was a 'private siding' and all costs for construction and maintenance were the responsibility of the siding's owner.

A further example of a private siding is Mr. Workman's timber yard at Woodchester. This drawing was held at Kew and shows the layout of the Midland Railway's sidings with the connection to the timber yard. What is interesting about the drawing is the signal box by the level crossing. This is also shown on Peter Smith's drawing, which appears in Colin

**Between Dudbridge and Woodchester.**

All traffic to and from Kimmins' siding between Dudbridge Junction and Woodchester Station, must be attached and detached by trains running from Woodchester to Dudbridge, and trains going from Dudbridge to Woodchester must not attach or detach any vehicles at this siding.

**Woodchester.**

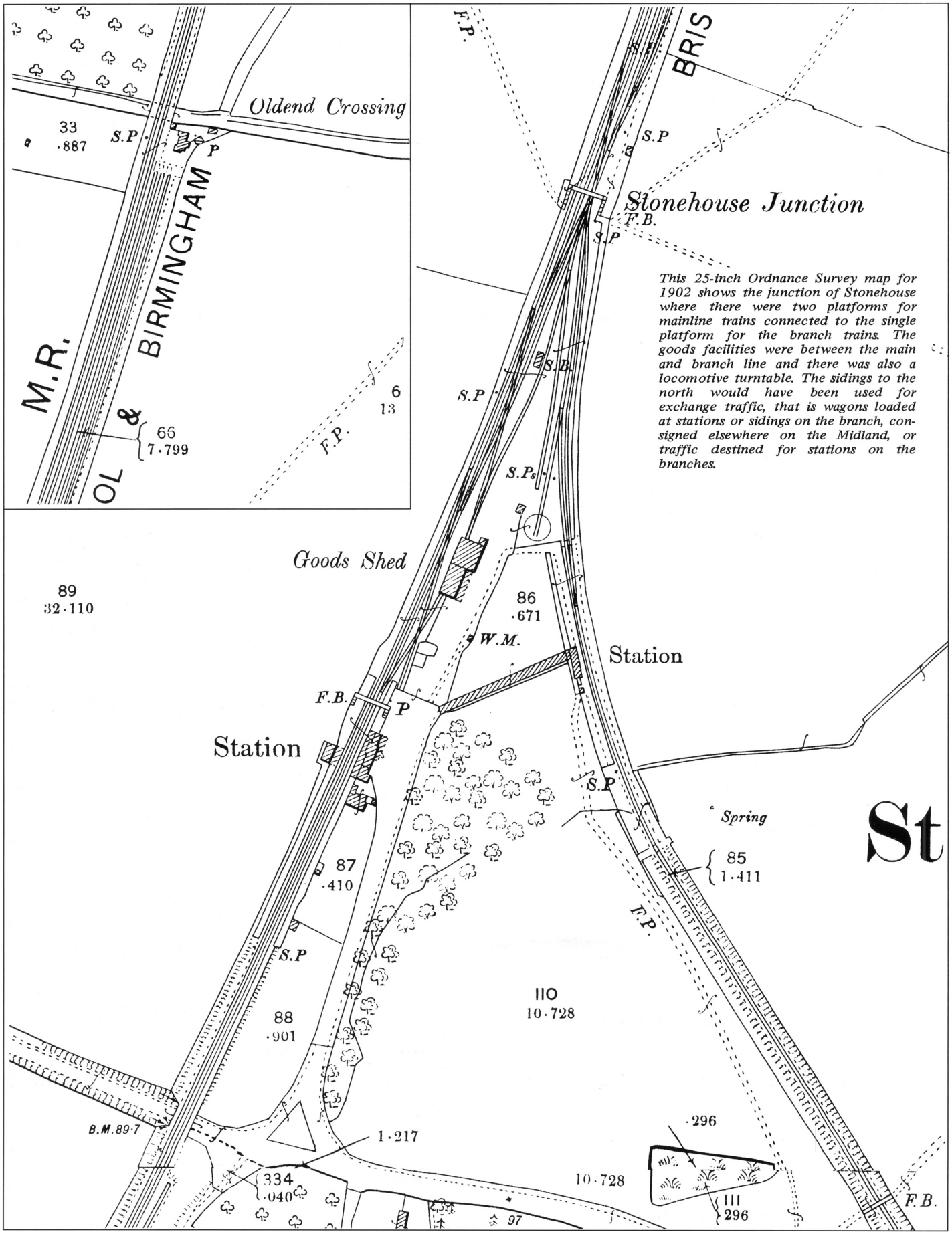
The connection between the second and third sidings from the main line at the Nailsworth end of the Woodchester goods yard is worked by Guards and Shunters from a stage, and controlled by a Key, which, when not in use, must be kept in the lever frame at the stage.

Before Messrs. Workman's steam travelling crane is allowed to foul the third siding from the main line in the Woodchester goods yard, Messrs. Workman's servants must obtain possession of the Key in order to prevent Midland engines from entering the siding, and as soon as the crane has returned into Messrs. Workman's yard, the Key must be at once replaced in the lever frame. In the event of a Midland train requiring to enter the third siding from the main line in the Woodchester goods yard during the time Messrs. Workman's servants have possession of the Key, Messrs. Workman's servants must be requested to place the crane clear of the Woodchester goods yard sidings, and return the Key to the lever frame.

**Stroud.**

All trains and engines approaching Stroud must be brought to a stand before reaching the points near the goods yard end of the passenger platform.

*Extract from Midland Railway Appendix to the Working Timetable (No. 21) June 1904*

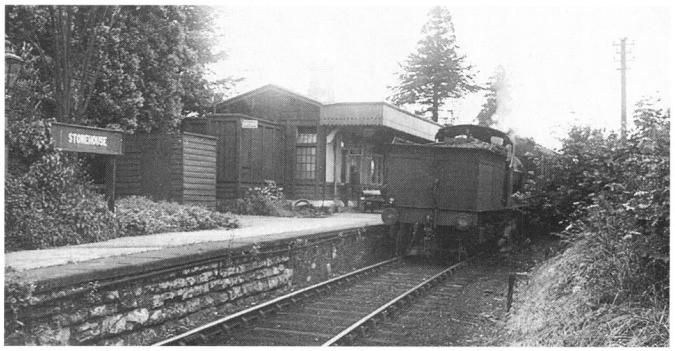



*This 25-inch Ordnance Survey map for 1902 shows the junction of Stonehouse where there were two platforms for mainline trains connected to the single platform for the branch trains. The goods facilities were between the main and branch line and there was also a locomotive turntable. The sidings to the north would have been used for exchange traffic, that is wagons loaded at stations or sidings on the branch, consigned elsewhere on the Midland, or traffic destined for stations on the branches.*

Maggs' book. There is no mention of a signal box at Woodchester in John Gough's *The Midland Railway, A Chronology*, so it was probably a crossing keeper's cabin, where there was a lever frame that controlled the signals protecting the level crossing and maybe the stage that controlled the two points and the associated trap points. Unfortunately, I have not been able to confirm this, so perhaps a reader can help. The Board of Trade Inspector's report that was filed with the drawing at Kew was dated 17th October 1883 and states that the connection nearest the level crossing was in place when the line was inspected (prior to opening) but he infers that the other point was a later addition and had not been inspected. However, he was satisfied with the arrangements that were in place.

*This picture, taken from the footbridge at Stonehouse Junction, shows to the left the branch line and, just round the curve, the branch platform with the starting and distant signals for Ryeford and the branch home signal, all mounted on one post. In the centre we can see the siding leading to the engine turntable and loading gauge for checking that traffic loaded here was 'inside the gauge'. Stonehouse Junction signal box features to the right of centre overlooking the main line.* C. L. MOWAT

*This photo shows the branch platform, facing towards Ryeford. As shown on the accompanying OS map, there was a walkway between the mainline and branch line platforms, but unfortunately, I do not have a picture to illustrate it.* C. L. MOWAT

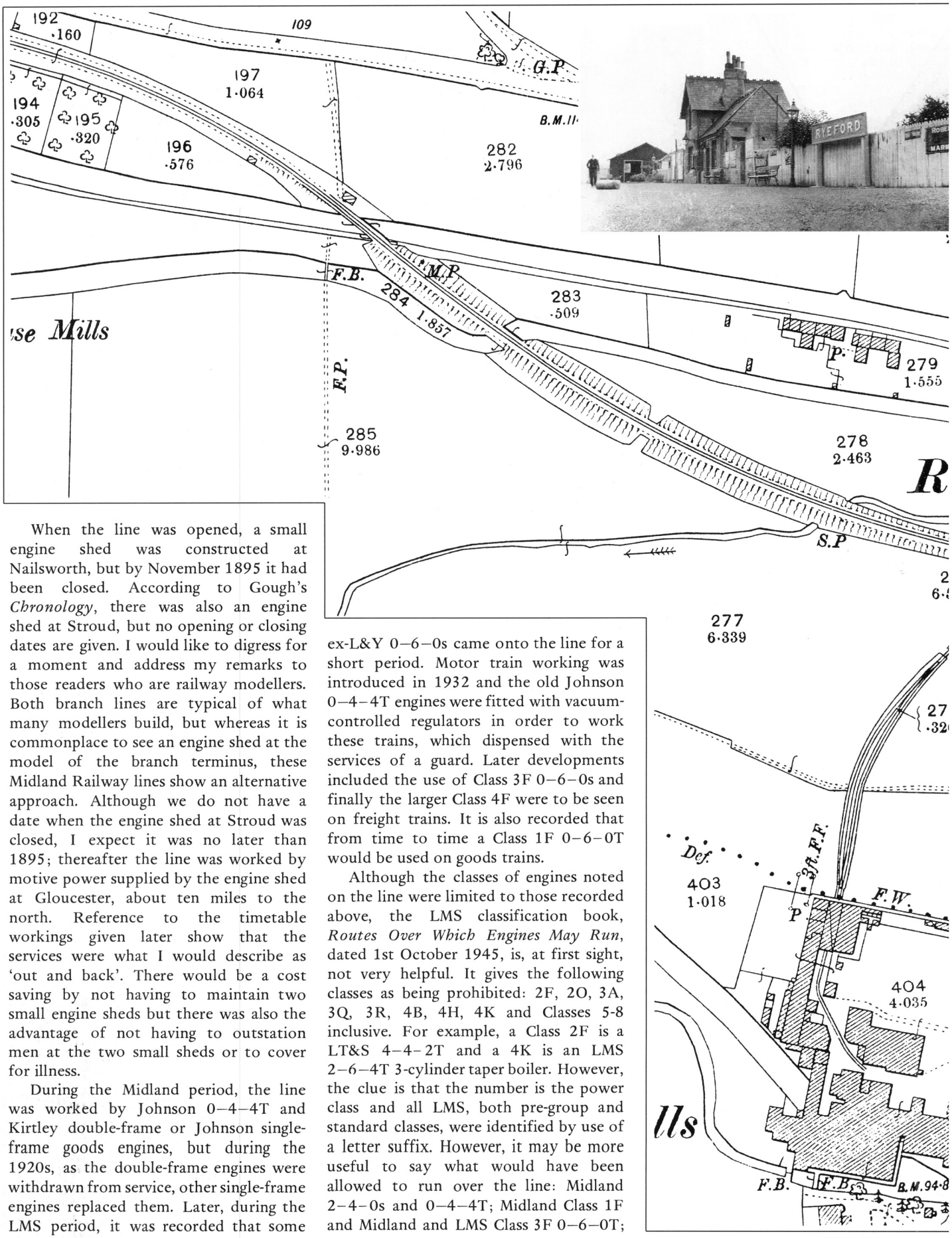



*Taken on 14th June 1947, this shows Class 3F No. 3754 on the Nailsworth branch train.*
P. B. WHITEHOUSE

*This picture, taken on 14th June 1947, at the end of the branch platform looking towards Nailsworth, shows the home signal and starting and distant signals for trains proceeding along the branch.*
P. B. WHITEHOUSE

*No. 3754 running towards Nailsworth with what, according to a note on the reverse of the print, was possibly the final day of passenger services on the branch. Note the single coach was a third class motor driving carriage.*
P. B. WHITEHOUSE

*Stonehouse Wharf was an interchange for traffic between the railway and the Stroudwater Canal. It was less than half a mile from the branch platform at Stonehouse and just over half a mile from Ryeford (see the Distance Diagram on page 57). Access was by a ground frame, which was opened by a key on the end of the staff. Although not shown on the OS map, there would have been trap points at the end of the siding to protect the running line.*

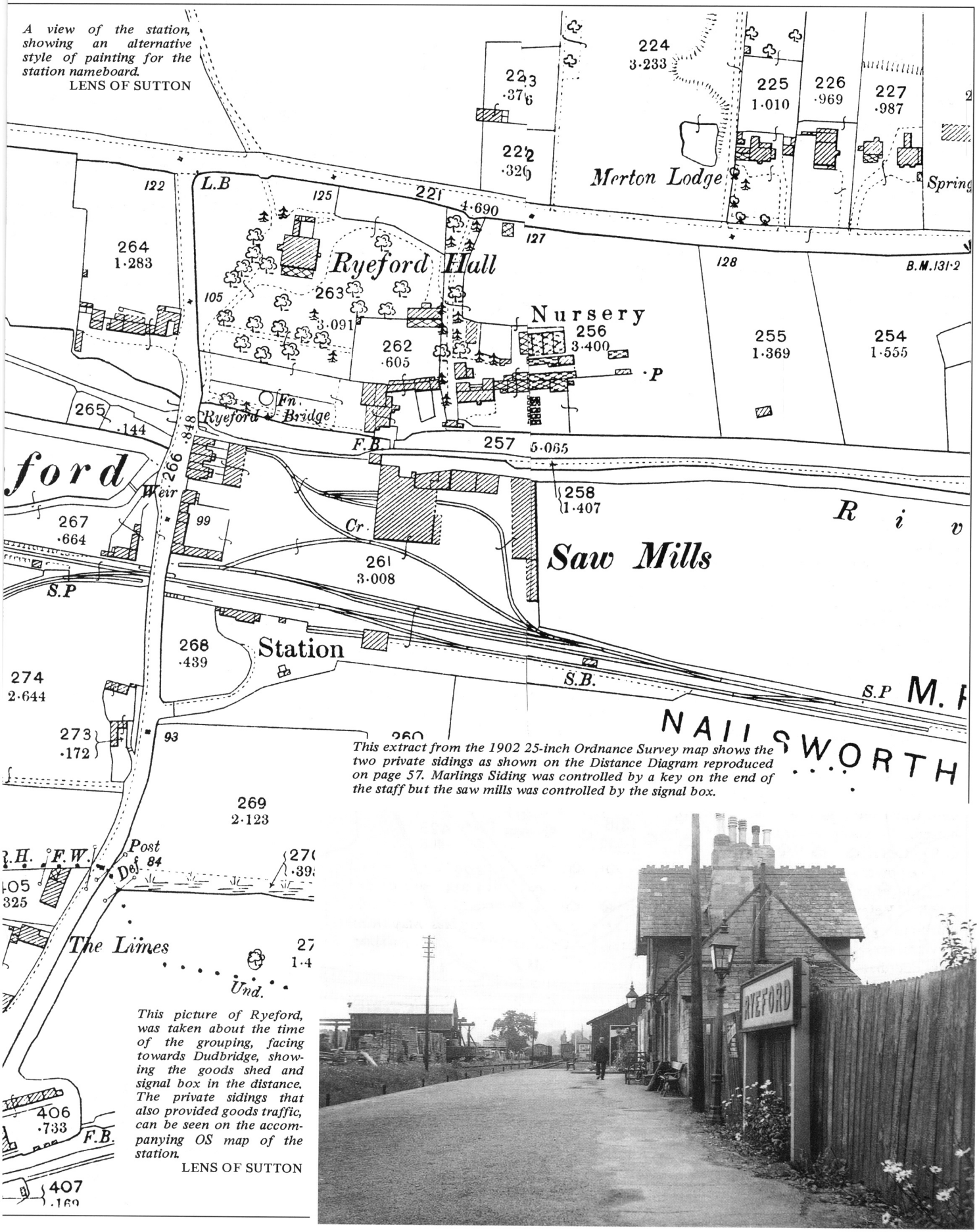



When the line was opened, a small engine shed was constructed at Nailsworth, but by November 1895 it had been closed. According to Gough's *Chronology*, there was also an engine shed at Stroud, but no opening or closing dates are given. I would like to digress for a moment and address my remarks to those readers who are railway modellers. Both branch lines are typical of what many modellers build, but whereas it is commonplace to see an engine shed at the model of the branch terminus, these Midland Railway lines show an alternative approach. Although we do not have a date when the engine shed at Stroud was closed, I expect it was no later than 1895; thereafter the line was worked by motive power supplied by the engine shed at Gloucester, about ten miles to the north. Reference to the timetable workings given later show that the services were what I would describe as 'out and back'. There would be a cost saving by not having to maintain two small engine sheds but there was also the advantage of not having to outstation men at the two small sheds or to cover for illness.

During the Midland period, the line was worked by Johnson 0–4–4T and Kirtley double-frame or Johnson single-frame goods engines, but during the 1920s, as the double-frame engines were withdrawn from service, other single-frame engines replaced them. Later, during the LMS period, it was recorded that some ex-L&Y 0–6–0s came onto the line for a short period. Motor train working was introduced in 1932 and the old Johnson 0–4–4T engines were fitted with vacuum-controlled regulators in order to work these trains, which dispensed with the services of a guard. Later developments included the use of Class 3F 0–6–0s and finally the larger Class 4F were to be seen on freight trains. It is also recorded that from time to time a Class 1F 0–6–0T would be used on goods trains.

Although the classes of engines noted on the line were limited to those recorded above, the LMS classification book, *Routes Over Which Engines May Run*, dated 1st October 1945, is, at first sight, not very helpful. It gives the following classes as being prohibited: 2F, 2O, 3A, 3Q, 3R, 4B, 4H, 4K and Classes 5-8 inclusive. For example, a Class 2F is a LT&S 4–4–2T and a 4K is an LMS 2–6–4T 3-cylinder taper boiler. However, the clue is that the number is the power class and all LMS, both pre-group and standard classes, were identified by use of a letter suffix. However, it may be more useful to say what would have been allowed to run over the line: Midland 2–4–0s and 0–4–4T; Midland Class 1F and Midland and LMS Class 3F 0–6–0T;

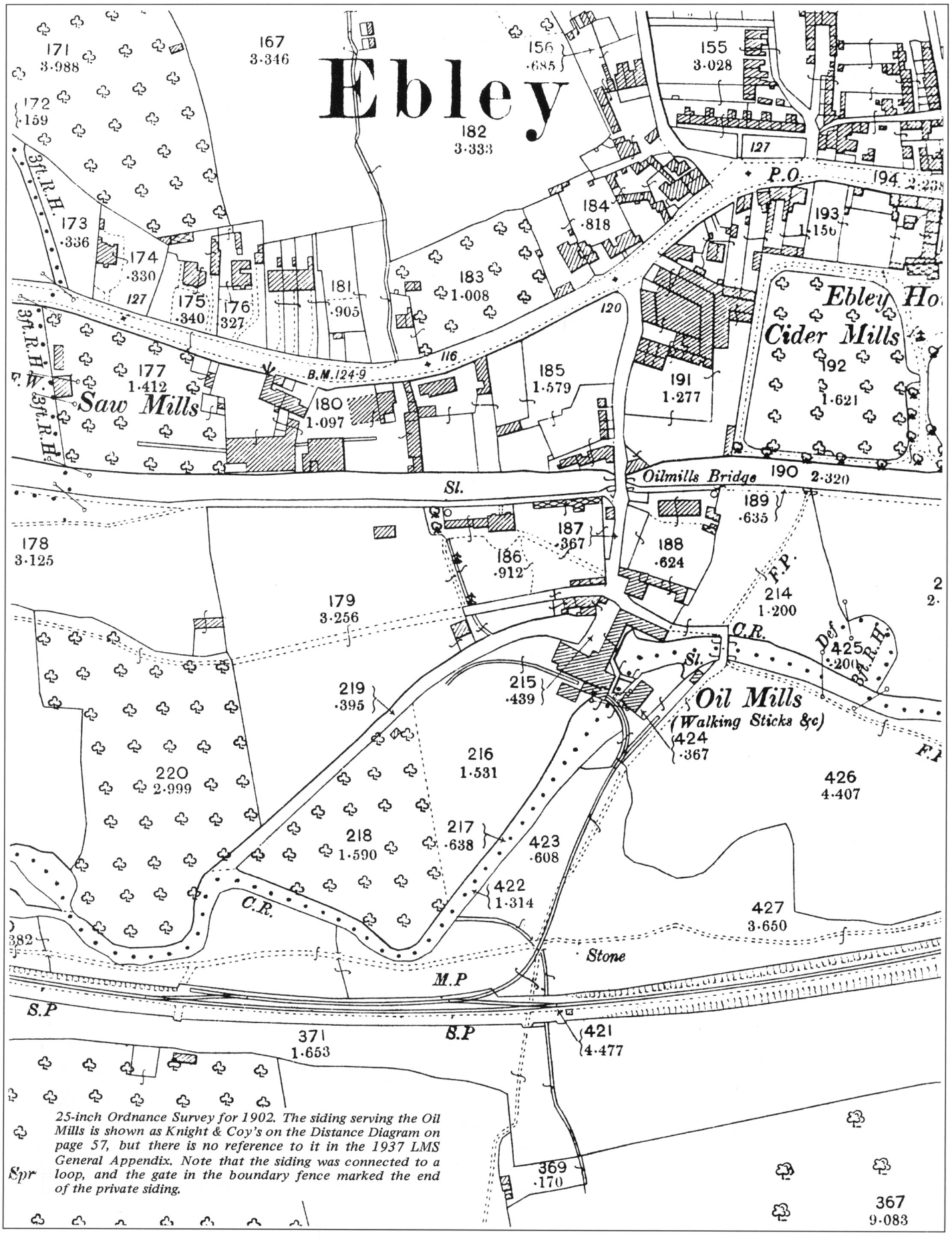
*A view of the station, showing an alternative style of painting for the station nameboard.*
LENS OF SUTTON




*This extract from the 1902 25-inch Ordnance Survey map shows the two private sidings as shown on the Distance Diagram reproduced on page 57. Marlings Siding was controlled by a key on the end of the staff but the saw mills was controlled by the signal box.*




*This picture of Ryeford, was taken about the time of the grouping, facing towards Dudbridge, showing the goods shed and signal box in the distance. The private sidings that also provided goods traffic, can be seen on the accompanying OS map of the station.*
LENS OF SUTTON




*25-inch Ordnance Survey for 1902. The siding serving the Oil Mills is shown as Knight & Coy's on the Distance Diagram on page 57, but there is no reference to it in the 1937 LMS General Appendix. Note that the siding was connected to a loop, and the gate in the boundary fence marked the end of the private siding.*

Midland and LMS Class 2P 4–4–0s; Midland 0–6–0 freight tender engines, power classes 2F and 3F and LMS Class 4F; LMS Class 3P 2-6–2T and LMS Class 2P 0–4–4T. There were many other LMS locomotives that were permitted to run on these branches, for example, 2A, Caledonian 4–4–0 passenger engines, but it would be most unlikely they would have been considered for such work.

I am not sure when the two branches were worked as one system, perhaps with the closure of both engine sheds, but the accompanying extract from the April 1909 Working Time Table shows a traffic pattern that was not really changed until after the Great War when road transport began to erode the viability of rural branch lines. Many authors regard the heyday of the British railway system as being either the late 1930s before the outbreak of the Second World War or the 1950s. In my view, the nature of the traffic determined the peak and whilst the late 1930s, with the eye-catching streamlined trains, did offer a spectacle, these trains only operated over a small part of the total railway system. On the other hand, during the 1950s, express freight trains were probably at their peak, but for branch lines in rural areas it was another story. The decline set in after the Great War and the Depression of the 1930s saw many stations close to passenger traffic; but this did not happen on the Stroud and Nailsworth branch lines. In truth, the rural branch line was at its peak during the late Victorian and Edwardian periods.

## TRAFFIC ON THE BRANCH LINES

I have reproduced extracts from the Midland Railway 1909 Working Time Table to show the train services during the years when the services were at their peak and from the LMS 1946 Working Time Table just prior to the closure of the passenger train service. Because they are self-contained branches, following the outwards and balancing services is reasonably straightforward, but in the absence of any diagrams, it is not possible to be entirely certain which locomotive worked which service. For example, the first train to depart from Stonehouse was at 5.0 a.m. It began as the 3.0 a.m. goods from Gloucester, which arrived at Stonehouse at 3.25 a.m. and remained there until 5.0 a.m. when it departed for Stroud, arriving at 5.25 a.m. After performing

460 NAILSWORTH, STROUD, & STONEHOUSE (Single Line.)

WEEKDAYS.

| Miles from Nailsworth | STATIONS. | 1 Goods to Nailsworth. | 2 Passenger. | 3 Mixed. | 4 Mixed. | 5 Goods, &c. | 6 Passenger. | 7 Passenger. | 8 Goods, &c. | 9 Passenger. | 10 Passenger. | 11 Passenger. | 12 Passenger. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | a.m. | a.m. | a.m. | a.m. | a.m. | a.m. | a.m. | a.m. | a.m. | a.m. | a.m. | a.m. |
| .. | NAILSWORTH ....dep. | .. | .. | 7 50 | .. | 8 30 | 9 8 | .. | .. | 9 58 | .. | .. | 10 31 |
| ½ | Dunkirk Siding | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| .. | Dyehouse Sid. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 1½ | Woodchester arr. | .... | .... | 7 54 | .... | .... | 9 11 | .... | .... | 10 1 | .... | .... | 10 35 |
| | Woodchester dep. | .. | . | 7 55 | .. | .. | 9 12 | .. | . | 10 2 | .. | .. | 10 36 |
| .. | STROUD | 6 52 | 7 52 | .... | 8 32 | .... | .... | 9 18 | 9 45 | .... | 10 10 | 10 34 | .... |
| 3¼ | Dudbridge arr. | 6 55 | 7 55 | 8 0 | 8 35 | 8 40 | 9 16 | 9 21 | 9 49 | 10 6 | 10 13 | 10 37 | 10 40 |
| | Dudbridge dep. | See page 461 Train 7. | .... | 8 3 | .... | 8 49 | .... | 9 22 | .... | .... | 10 17 | 10 44 | .... |
| 4½ | Ryeford arr. | | .. | 8 6 | .. | .. | .. | 9 25 | .. | .. | 10 20 | .. | .. |
| | Ryeford dep. | | .... | 8 8 | .... | .... | .... | 9 27 | .... | .... | 10 22 | .... | .... |
| 5¾ | STONEHOUSE ....arr. | | .. | 8 12 | .. | 8 55 | .. | 9 31 | .. | .. | 10 26 | 10 49 | .. |

| STATIONS. | | 15 Mixed. | 17 Goods, &c. | 18 Passenger | 19 Light Engine. | 20 Engine and Brake. | 22 Passenger | 23 Passenger | 24 Passenger | 25 Passenger | 26 Passenger | 28 Passenger | 29 Engine and Brake. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Makes a trip to Stonehouse Wharf, when req. | a.m. | a.m. | noon | p.m. | p.m. | p.m. | p.m. | p.m. | p.m. | p.m. | p.m. | p.m. |
| NAILSWORTH.... dep. | | 11 12 | .. | .. | .. | .. | .. | 1 20 | SO | 3 5 | .. | .. | .. |
| Dunkirk Siding | | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| Dyehouse Sid. | | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Woodchester arr. | | 11 16 | .... | .... | .... | .... | .... | 1 24 | .... | 3 9 | .... | .... | .... |
| Woodchester dep. | | 11 17 | .. | .. | .. | .. | .. | 1 25 | .. | 3 10 | .. | .. | 3 49 |
| STROUD | | .... | 11 10 | 12 0 | 12 30 | 12 58 | 1 22 | .... | 2 0 | .... | 3 15 | 3 52 | .... |
| Dudbridge arr. | | 11 21 | 11 15 | 12 3 | 12 33 | 1 1 | 1 25 | 1 29 | 2 3 | 3 14 | 3 19 | 3 55 | 3 53 |
| Dudbridge dep. | | 11 24 | 11 32 | .... | .... | 1 13 | .... | 1 32 | .... | .... | 3 23 | .... | .... |
| Ryeford arr. | | 11 28 | 11 35 | .. | .. | .. | .. | 1 35 | .. | .. | 3 26 | .. | .. |
| Ryeford dep. | | 11 31 | 11 40 | .... | .... | .... | .... | 1 37 | .... | .... | 3 28 | .... | .... |
| STONEHOUSE .... arr. | | 11 35 | 11 44 | .. | .. | 1 22 | .. | 1 41 | .. | .. | 3 32 | .. | .. |

| STATIONS. | 30 Passenger. | 31 Passenger | 32 Passenger | 33 Goods, &c. | 34 Goods, &c. | 35 Class "B" Goods to Gloucester. | 36 Mixed. | 38 Mixed. | 39 Passenger | 41 Class "B" Goods to Gloucester. | 43 Goods, &c., to Gloucester. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | On Saturdays detaches Bristol tranship wagon at Woodchester when required. | | Leaves Stroud Passenger Station 6.43. | | Makes a trip to Stonehouse Wharf, when req. | | | When required runs E. & B. from Nailsworth to Dye House Sids. to work traffic to Nailsworth. When required, makes a special trip from Dudbridge to Stroud with live stock; also returns special from Stonehouse with Ryeford traffic when 2.20 p.m. from Stonehouse does not stop at Ryeford. |
| | p.m. | p.m. | p.m. | p.m. | p.m. | p.m. | p.m. | p.m. | p.m. | p.m. T | p.m. |
| NAILSWORTH dep | 5 0 | .. | .. | 5 45 | 6 25 S | .. | .. | 7 0 | .. | See page 448 Train 262. | 9 0 |
| Dunkirk Siding | .... | .... | .... | .... | .... | .... | .... | .... | .... | | See p. 448, T 293 & 2. |
| Dyehouse Sid. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | |
| Woodchester arr. | 5 4 | .... | .... | .... | 6 30 | Limited to 20 wags. of goods to Stonehouse | .... | .... | .... | | 9 5 |
| Woodchester dep. | 5 5 | .. | .. | 5*55 | 6 34 | | .. | 7 5 | .. | | 9 30 |
| STROUD | .... | 5 10 | 5 52 | .... | .... | 6 40 | 7 3 | .... | 7 55 | 8 45 | . |
| Dudbridge arr. | 5 9 | 5 13 | 5 55 | 6 0 | 6 39 | 6 46 | 7 6 | 7 10 | 8 0 | 8¶55 | 9 35 |
| Dudbridge dep. | .... | 5 18 | .... | 6 10 | .... | 6 55 | .... | 7 15 | .... | 9 0 | 9 50 |
| Ryeford arr | .. | 5 21 | .. | 6 15 | .. | See p. 445, T 241. | .. | 7 18 | .. | 9 3 | 9 55 |
| Ryeford dep | .... | 5 23 | .... | 6 20 | .... | | .... | 7 20 | .... | 9 8 | 10 5 |
| STONEHOUSE .. | .. | 5 27 | .. | 6 25 | .. | 7 0 | .. | 7 24 | .. | 9 12 | 10 10 |

*Stroud Branch Engine makes a trip, when necessary, from Stonehouse to Stanley Downton Flour Mill, near Stonehouse Wharf, between 7.19 and 8.0 p.m.*

T Leaves Stroud Pass. Station at 8.50. When the whole of the work cannot be done for train to get away from Stroud Goods Station by 8.50 p.m., start at that time with London goods, and returns special Stonehouse to Stroud for remainder of traffic. Attaches traffic for London and North of Derby only at Dudbridge and Ryeford.

STONEHOUSE, NAILSWORTH, AND STROUD (Single Line). 461

| Miles from Stonehouse. | STATIONS. | 1 3.0 a.m. Goods from Gloucester. | 2 | 3 6.35 a.m. Goods, &c., from Gloster D | 4 6.5 a.m. Goods from Gloucester. | 5 Passenger | 7 6.52 a.m. Goods from Stroud. | 9 Passenger. | 10 Passenger | 11 Passenger. | 12 Goods, &c. E | 13 Passenger | 14 Goods, &c. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | a.m. | | a.m. | a.m. | a.m. | a. m. | a.m | a.m. | a.m. | a.m. | a.m. | a.m. |
| .. | STONEHOUSE | 5 0 | .. | 6 10 | 6 50 | .. | See page 460, Train 1. | 8 32 | .. | .. | 9 10 | 9 52 | .. |
| 1½ | Ryeford | .. | .... | .... | .... | .... | | 8 37 | .... | .... | .... | .... | .... |
| 2½ | Dudbridge arr. | 5 10 | .. | 6*18 | 6 58 | .. | | 8 40 | .. | .. | 9 17 | 9 57 | .. |
| | Dudbridge dep. | 5 20 | .... | 6*26 | 7 10 | 8 5 | 8 7 | 8 42 | 8 45 | 9 30 | 9 26 | 9 58 | 10 6 |
| | 3½ STROUD | 5 25 | .. | .. | 7 15 | 8 10 | .. | 8 45 | .. | .. | 9 30 | 10 1 | .. |
| 4½ | Woodchester arr. | .... | .... | 6 35 | .... | .... | 8 12 | .... | 8 50 | 9 34 | .... | .... | 10 12 |
| | Woodchester dep. | See page 413 Train 15. | .. | 6 50 | See page 414 Train 40 | .. | 8 17 | .. | 8 51 | 9 35 | .. | .. | 10 15 |
| .. | Dyehouse Siding | | .... | See p. 413 Tn. 33 | | .... | .... | .... | .... | .... | .... | .... | .... |
| 5½ | Dunkirk Siding | | .. | | | .. | .. | .. | .. | .. | .. | .. | .. |
| 5¾ | NAILSWORTH | | .... | 6 55 | | .... | 8 22 | .... | 8 55 | 9 39 | .... | .... | 10 19 |

| STATIONS. | 15 Passenger | 16 Passenger | 17 Goods, &c. | 18 Passenger | 19 Passenger | 20 Passenger | 21 Goods, &c. | 22 Light Engine. | 23 Passenger | 24 Passenger | 25 Mixed. | 27 Goods, &c. J | 28 Mixed. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | a. m. | a.m. | a.m. | a.m. | p.m. | p. m. | p. m. | p.m. | p.m. | p.m. | p.m. | p.m. | p.m. |
| STONEHOUSE ....dep. | .. | 10 37 | .. | 11 15 | 12 3 | .. | 12 35 | .. | SO | .. | 2 0 | 2 20 | .. |
| Ryeford | .... | 10 41 | .... | 11 19 | 12 7 | .... | .... | .... | .... | .... | 2 4 | 2 50 | .... |
| Dudbridge arr. | .. | 10 44 | .. | 11 22 | 12 10 | .. | 12*41 | .. | .. | .. | 2 7 | 2 55 | .. |
| Dudbridge dep. | 10 16 | 10 45 | 10 52 | 11 25 | 12 11 | 12 14 | 12*43 | 1 5 | 1 33 | 2 9 | 2 11 | 3 14 | 3 24 |
| STROUD | 10 19 | .. | 10 57 | 11 28 | .. | 12 17 | 12 48 | 1 8 | 1 38 | 2 12 | .. | .. | 3 27 |
| Woodchester arr. | .... | 10 49 | .... | .... | 12 15 | .... | Limited to 20 Wagons | .... | .... | .... | 2 16 | 3 19 | .... |
| Woodchester dep. | .. | 10 50 | .. | .. | 12 16 | .. | | .. | .. | .. | 2 20 | .. | .. |
| Dyehouse Siding | .... | .... | .... | .... | .... | .... | | .... | .... | .... | .... | .... | .... |
| Dunkirk Siding | .. | .. | .. | .. | .. | .. | | .. | .. | .. | .. | .. | .. |
| NAILSWORTH .... arr. | .. | 10 54 | .... | .... | 12 20 | .... | | .... | .... | .... | 2 24 | .... | .... |

| STATIONS. | 30 Pass. | 31 Pass. | 32 Pass. | 33 Pass. | 34 | 35 Pass. | 36 Pass. | 37 | 39 Engine and Brake. | 40 Pass. | 41 Pass. | 42 Mixd. | 43 Mixd. | 44 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | p.m. | p.m. | p. m. | p.m | | p.m. | p.m. | | p. m. | p.m. | p.m | p.m | p.m. | |
| STONEHOUSE ....dep. | 4 0 | .. | .. | .. | .. | 5 52 | .. | .. | S | 6 40 | .. | 8 2 | .. | .. |
| Ryeford | 4 4 | .... | .... | .... | .... | 5 56 | .... | .... | .... | 6 44 | .... | 8 7 | R | .... |
| Dudbridge arr. | 4 7 | .. | .. | .. | .. | 5 59 | .. | .. | .. | 6 47 | .. | 8 10 | .. | .. |
| Dudbridge dep. | 4 9 | 4 11 | 5 16 | 5 19 | .... | 6 1 | 6 3 | .... | 6 40 | 6 49 | 7 17 | 8 12 | 8 14 | .... |
| STROUD | 4 12 | .. | .. | 5 22 | .. | 6 4 | .. | .. | .. | 6 52 | 7 20 | 8 15 | .. | .. |
| Woodchester arr. | .... | 4 15 | 5 20 | .... | .... | .... | 6 7 | .... | .... | .... | .... | .... | 8 19 | .... |
| Woodchester dep. | .. | 4 17 | 5 21 | .. | .. | .. | 6 9 | .. | .. | .. | .. | .. | 8 20 | .. |
| Dyehouse Siding | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| Dunkirk Siding | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| NAILSWORTH .... arr. | .. | 4 21 | 5 24 | .... | .... | .... | 6 12 | .... | 6 45 | .... | .... | .... | 8 24 | .... |

D—Stops at Stonehouse Wharf, Lane's Siding, and Dyehouse. Stops at Dudbridge to attach tariff and to detach. Places wagons in position at Woodchester when practicable. E—Stops at Ryeford to detach important goods. J—Stops at Stonehouse Wharf, Lane's and Grist's Siding. R—Runs Special Nailsworth to Stonehouse when required for Cattle. S—Runs between Woodchester and Nailsworth when required to fetch live stock.

*The 1909 Working Timetable.*

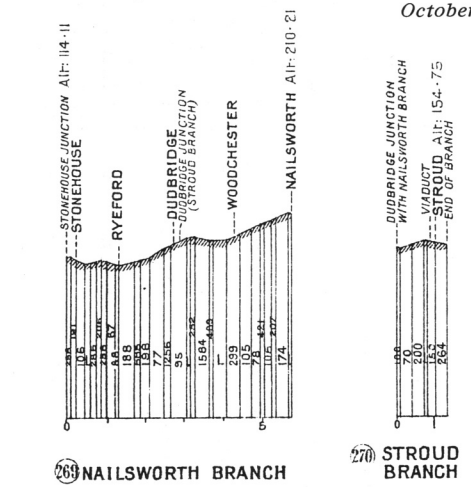
## STONEHOUSE, STROUD AND NAILSWORTH.

| Miles. | | WEEKDAYS. 1 | 2 Mineral. | 3 Light Engine. | 4 Freight. | 6 Freight. | 7 Freight. | 8 Freight. | SUNDAYS. 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | ✻ a.m. | a.m. | a.m. | p.m. | p.m. | ✻ p.m. | | | |
| 0 | STONEHOUSE‡.....dep. | .. | 5 5 | .. | 9 20 | 1 27 | 2 45 | .. | .. | .. | .. |
| | Stonehouse Wharf ..... | .. | .. | .. | .. | .. | 2 59 | .. | .. | .. | .. |
| 1 | Ryeford ..... arr. | .. | .. | .. | .. | .. | 3 3 | .. | .. | .. | .. |
| | dep. | .. | .. | .. | .. | 1 42 | 3 20 | .. | .. | .. | .. |
| | Lane's Siding ..... | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 2¼ 0 | Dudbridge.....‡...‡ arr. | .. | 5 13 | .. | 9 30 | .. | 3 25 | .. | .. | .. | .. |
| | ‡...‡ dep. | .. | 5 25 | 7 45 | 9 40 | 1*47 | 3 37 | 4 55 | .. | .. | .. |
| 1¼ | Stroud .....‡...arr. | .. | .. | 7 50 | 9 50 | 1 52 | .. | .. | .. | .. | .. |
| 4 | Woodchester ..... | .. | 5 39 | .. | .. | .. | 3 51 | .. | .. | .. | .. |
| 5½ | NAILSWORTH‡.....arr. | .. | 6 1 | .. | .. | .. | .. | 5 15 | .. | .. | .. |

| Miles. | | 14 Freight. | 15 Freight to Harrwood Sdg. | 16 Freight. | 17 Freight. | 19 Engine and Brake. | 20 | 21 Through Freight to Gloucester. | 23 | 24 | 25 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | a.m. | a.m. | a.m. | p.m. | | p.m. | ✻ p.m. | | | |
| 0 | NAILSWORTH‡.....dep. | .. | .. | .. | .. | .. | | .. | 5 40 | .. | .. | .. |
| 1½ | Woodchester ..... | .. | .. | .. | .. | .. | | 4 0 | 5 55 | .. | .. | .. |
| 0 | Stroud .....‡...dep. | 8 20 | .. | 10 45 | 2 8 | .. | | .. | .. | .. | .. | .. |
| 3½ 1½ | Dudbridge.....‡...‡ arr. | 8 28 | .. | 10 53 | 2 15 | .. | | 4 5 | 6 0 | .. | .. | .. |
| | ‡ dep. | .. | 8 43 | 10 58 | .. | .. | | .. | 6 45 | .. | .. | .. |
| 4½ | Ryeford ..... arr. | .. | .. | .. | .. | .. | | .. | .. | .. | .. | .. |
| | dep. | .. | .. | .. | .. | .. | | .. | .. | .. | .. | .. |
| 5½ | STONEHOUSE‡.....arr. | .. | 8 55 | 11 8 | .. | .. | | .. | 6 55 | .. | .. | .. |

S—Arrives Woodchester 5.32, departs United Brassfounders' Siding 5.49 (detach only) and Dunkirk Siding 5.56 a.m (detach only). ‡—Arrives Lane's Siding 1.17 p.m. 7—Calls at Stonehouse Wharf when required, arr. 3.49. Stops at Grist's Siding and leaves there 3.49. ✻—Departs United Brassfounders' Siding 5.4 and Dunkirk Siding 5.10 p.m., attaches only at these places. 21—Arrives Woodchester 5.45.

*LMS Working Time Table of Freight Trains 6th May to 6th October 1946.*




***This extract from the Midland Railway 1902 edition of Gradient Sections shows both branch lines. I can imagine a driver describing the line to Nailsworth as being 'against the engine', in other words it was a rising gradient for most of the line between Ryeford and the terminus, but the Stroud branch was a climb to the summit at the viaduct in both directions.***

## STONEHOUSE, STROUD AND NAILSWORTH.

| Miles | | WEEKDAYS ONLY. 1 Empty Carriages. | 2 MOTOR | 3 MOTOR | 4 MOTOR | 5 MOTOR | 6 MOTOR | 7 MOTOR | 8 MOTOR | 9 MOTOR | 10 MOTOR | 11 MOTOR | 12 MOTOR | 13 PASSENGER (Mixed). | 14 PASSENGER | 15 PASSENGER | 16 PASSENGER | 17 PASSENGER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | SX | SX | SO | | | | | | | | |
| | | a.m. | a.m. | a.m. | a.m. | a.m. | a.m. | a.m. | p.m. | noon | p.m. | p.m. | p.m. | p.m. | p.m. | p.m. | p.m. | p.m. |
| 0 | STONEHOUSE..‡.....dep. | 6 45 | 7 10 | 8 20 | .. | 10 35 | .. | 11 43 | .. | 12 0 | .. | 1 20 | 2 38 | .. | .. | 6 36 | 7 50 | .. |
| 1 | Ryeford ..... | .. | 7 14 | 8 24 | .. | 10 39 | .. | 11 47 | .. | 12 4 | .. | 1 24 | 2 42 | .. | .. | 6 40 | 7 54 | .. |
| 2¼ 0 | Dudbridge.....‡...‡ arr. | .. | 7 18 | 8 28 | .. | 10 43 | .. | 11 51 | .. | 12 8 | .. | 1 28 | 2 46 | .. | .. | 6 44 | 7 58 | .. |
| | dep. | 6*51 | 7 22 | 8 30 | 8 40 | 10 44 | 11 10 | 11 53 | 12 7 | 12 12 | 12 36 | 1 29 | 2 47 | 2 59 | 5 20 | 6 45 | 7 59 | 8 18 |
| 1 | STROUD .....‡...arr. | .. | 7 25 | 8 33 | .. | .. | 11 13 | 11 56 | .. | .. | 12 39 | .. | .. | 2 53 | 5 23 | .. | 8 2 | .. |
| 4 — | Woodchester..... arr. | .. | .. | .. | 8 44 | 10 48 | .. | .. | 12 11 | 12 16 | .. | 1 33 | 2 51 | .. | .. | 6 49 | .. | 8 22 |
| | dep. | .. | .. | .. | 8 45 | 10 49 | .. | .. | 12 12 | 12 17 | .. | 1 34 | 2 52 | .. | .. | 6 50 | .. | 8 23 |
| 5½ | NAILSWORTH.‡.....arr. | 6 59 | .. | .. | 8 49 | 10 53 | .. | .. | 12 16 | 12 21 | .. | 1 38 | 2 56 | .. | .. | 6 54 | .. | 8 27 |

| Miles | | WEEKDAYS ONLY. 1 PASSENGER (Workmen.) | 2 PASSENGER (Mixed) | 3 MOTOR | 4 | 5 MOTOR | 7 MOTOR | 8 MOTOR | 9 MOTOR | 10 MOTOR | 11 MOTOR | 12 MOTOR | 13 MOTOR | 14 MOTOR | 15 PASSENGER | 16 PASSENGER | 17 PASSENGER | 18 PASSENGER | 19 Light Engine to Gloucester Loco. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | SX | | | | | | | | | |
| | | a.m | a.m | a.m | | a.m. | a.m. | a.m. | a.m. | noon | p.m. | p.m. | p.m | p.m | p.m | p.m | p.m | p.m | p.m. |
| 0 | NAILSWORTH.‡.....dep. | 6 18 | 7 10 | .. | .. | .. | 10 4 | 11 0 | .. | .. | 12 25 | .. | 1 45 | 3 22 | .. | .. | 7 12 | .. | 8 42 |
| 1½ | Woodchester ..... | 6 22 | 7 15 | .. | .. | .. | 10 8 | 11 4 | .. | .. | 12 29 | .. | 1 49 | 3 26 | .. | .. | 7 16 | .. | .. |
| 0 | STROUD .....‡...dep. | .. | .. | 7 33 | .. | 8 35 | .. | .. | 11 15 | 12 0 | .. | 12 55 | .. | .. | 3 30 | 5 35 | .. | 8 10 | .. |
| 3½ 1 | Dudbridge.....‡...‡ arr. | 6 26 | 7 20 | 7 36 | .. | 8 38 | 10 12 | 11 8 | 11 18 | 12 3 | 12 33 | 12 58 | 1 53 | 3 30 | 3 33 | 5 38 | 7 20 | 8 13 | .. |
| | dep. | 6 27 | .. | 7 41 | .. | .. | 10 13 | .. | 11 19 | .. | .. | 12 59 | 1 54 | 3 38 | .. | 5 39 | 7 21 | .. | 8*49 |
| 4½ — | Ryeford..... arr. | 6 30 | .. | 7 44 | .. | .. | 10 16 | .. | 11 22 | .. | .. | 1 2 | 1 57 | 3 39 | .. | 5 42 | 7 24 | .. | .. |
| | dep. | 6 31 | .. | 7 45 | .. | .. | 10 17 | .. | 11 23 | .. | .. | 1 3 | 1 58 | 3 40 | .. | 5 43 | 7 25 | .. | .. |
| 5½ | STONEHOUSE..‡.....arr. | 6 35 | .. | 7 48 | .. | .. | 10 20 | .. | 11 26 | .. | .. | 1 6 | 2 1 | 3 43 | .. | 5 46 | 7 28 | .. | 8*54 |

*LMS (Midland Division) Working Time Table of Passenger Trains 6th May to 6th October 1946.*

### LOADING OF PASSENGER AND FREIGHT ENGINES WORKING PASSENGER TRAINS ON BRANCH LINES

| *Section* | *Up or Down* | *Class of Engine — Passenger* 1 | 2 | 3 | 4 | 5 | 5X | *Class of Engine — Freight* 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *Load in Tons* | | | | | | *Load in Tons* | | | |
| Nailsworth or Stroud to Stonehouse | Either | 130 | 180 | 215 | 240 | 275 | 310 | 200 | 235 | 265 | 300 |

### LOADING OF MINERAL TRAINS

| | *Up Line* *Class of Engine* 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | *Maximum number authorised* | *Down Line* *Class of Engine* 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | *Maximum number authorised* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *Number of wagons* | | | | | | | | | *Number of wagons* | | | | | | | | |
| Nailsworth or Stroud to Lane's Siding | 27 | 32 | 39 | 47 | 51 | 56 | 62 | 68 | 50 | 17 | 20 | 24 | 29 | 32 | 36 | 39 | 43 | 42 |
| Lane's Siding to Stonehouse | 27 | 32 | 39 | 47 | 51 | 56 | 62 | 68 | 50 | 24 | 29 | 35 | 41 | 46 | 50 | 55 | 60 | 50 |

*Dudbridge was the junction where the branch from Stroud joined the Stonehouse to Nailsworth line. The single line from Stonehouse became a double line before reaching the station and continued as two lines to meet the requirements of the Board of Trade that junctions between two single lines be formed as a double junction. From the opening of the line in 1867 until 1885 there was only one platform at the station but in July 1885 the Down platform was lengthened and the Up platform was brought into use. This picture shows Dudbridge in the early 1920s. The original name of the station was Dudbridge for Stroud but, following the opening of the branch to Stroud on 11th November 1885 for goods traffic and 1st July 1886 for passenger traffic, the name was changed to Dudbridge, although the station nameboard read Dudbridge Junction for Stroud. The junction with the Stroud line can be seen beyond the road bridge with the branch to Stroud to the left and the line to Nailsworth ahead.*

LENS OF SUTTON

any shunting that was required, the locomotive and brake van worked the 6.52 a.m. goods to Nailsworth, arriving at 8.22 a.m. It returned to Stonehouse as the 8.30 a.m. goods from Nailsworth.

The 1946 timetable is less complicated and reflects the reduced number of goods trains, whilst the passenger train service was quite straightforward and was largely worked by motor trains, although there were two mixed and one workmen's service.

The train loading over the branches was reasonably straightforward. The LMS Loading of Passenger and Freight Trains dated 1st October 1945 gives details on the page opposite.

It was not uncommon for the loading book to show anomalies. For example, the Midland Railway Class 3P 4–4–0 passenger tender engines were permitted to take 215 tons, but the Route Availability book clearly states that this class was not permitted on the line. Therefore a Class 4F 0–6–0 working a passenger train with 265 tons was the maximum that could be taken. This weight of train would be between 8-9 bogie coaches and the question of length would then become a factor. I doubt if more than five or six coaches was ever exceeded unless very special arrangements were made.

Freight trains were subject to the question of length; the maximum that could be taken was 50 wagons plus a brake van. The loading book for train weights on branch lines was based on mineral wagons and, depending upon the wagon loading, calculations had to be made. For example, 3½ wagons of goods or 5 empty wagons were equal to 2 wagons of minerals. The class of wagon was determined by the wagon label. '1' or '2' were counted as 'mineral' and '3' was counted as 'goods'. Empty wagons could have a label marked 'return to XXX' but usually empties were not labelled. There were further complications; the standard mineral wagon was 13 tons, but a steel 16 ton wagon was, if I remember correctly, equal to 1 1/3 and, of course, longer wagons, bogie bolsters and tube wagons were counted as equal to 3 or 2 in length, etc. The guard was responsible for making the calculations and advising the driver.

To summarise, if we had a Class 2F 0–6–0, the maximum number of loaded mineral wagons that could be taken from Stonehouse to Nailsworth would be 32, but if we had a train of 50 empty wagons, which was the maximum length of train for the line, this would be equal to 20 loaded mineral wagons, well inside of the maximum load for the class of engine. When the train was a mixture of loaded mineral wagons, goods wagons and empties, the guard had to calculate the weight of train and ensure that he did not exceed either the maximum load for the class of engine and length permitted for the section of line they were to travel over.

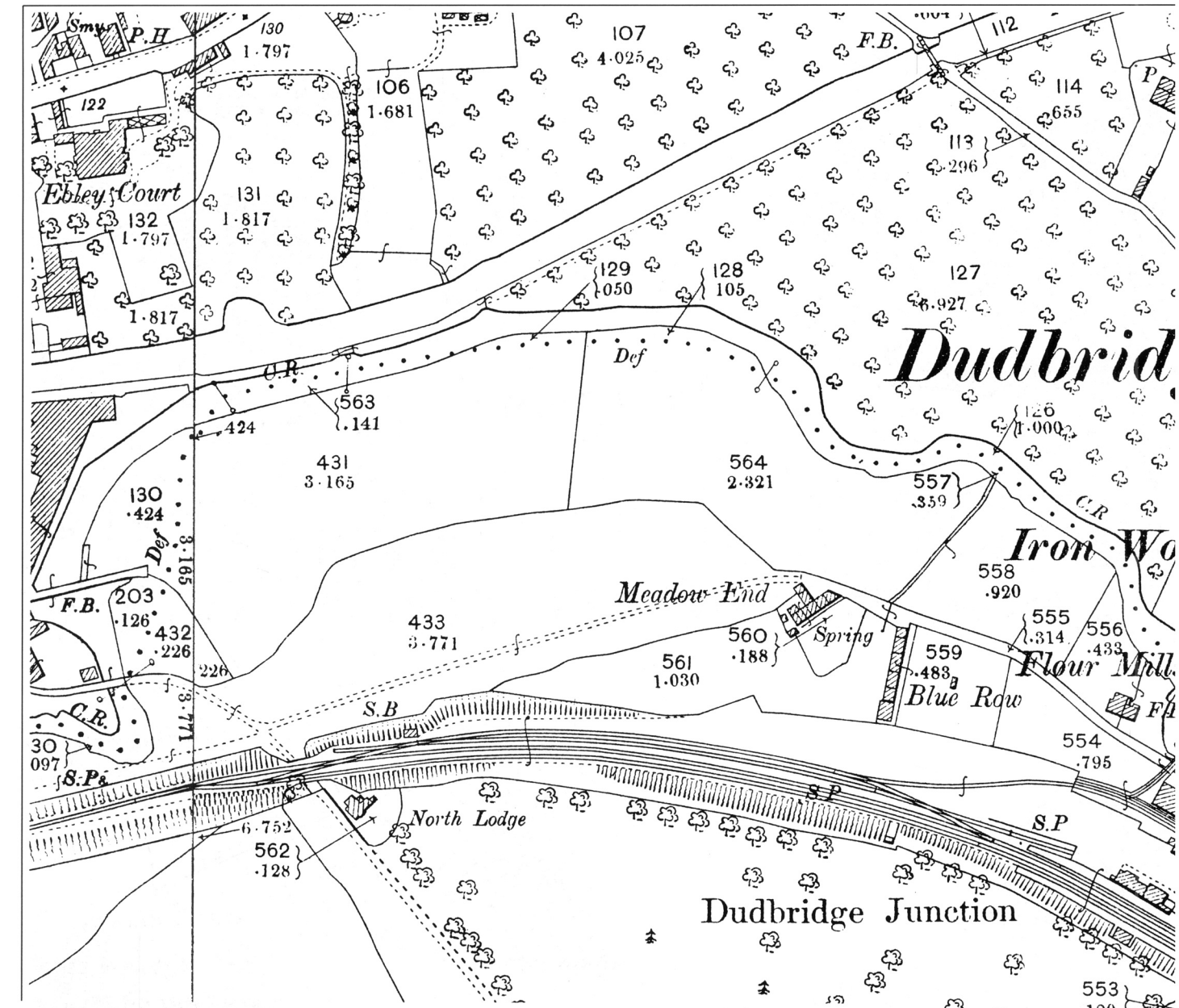
Finally, we come to the passenger trains. In his book Colin Maggs suggests that the first branch passenger trains were made up of 4- and 6-wheel coaches and

*It is possible that both this picture and the one on page 69 were taken on the same day, probably during the early 1920s. This view was looking towards Stonehouse. Beyond the bracket signal we can see the two sidings that originally served the flour mill. An early type of Midland water standpipe is also to be seen at the Stonehouse end of the Up platform. Dudbridge sidings signal box, opened in 1885, replaced in 1924 and closed on 7th December 1957, cannot be seen; it was at the Stonehouse end of the sidings.*

COLLECTION R. J. ESSERY

*Taken on 15th October 1955, this shows the junction at Dudbridge of the line from Stroud with the line from Nailsworth. Note that the earlier signal, seen on page 69, had been replaced by a bracket signal; the left arm was the signal for Stroud and the right was for Nailsworth. Note also the facing point lock and the double junction arrangement, which was the layout required by the Board of Trade when two single-track lines divided or came together.* W. POTTER

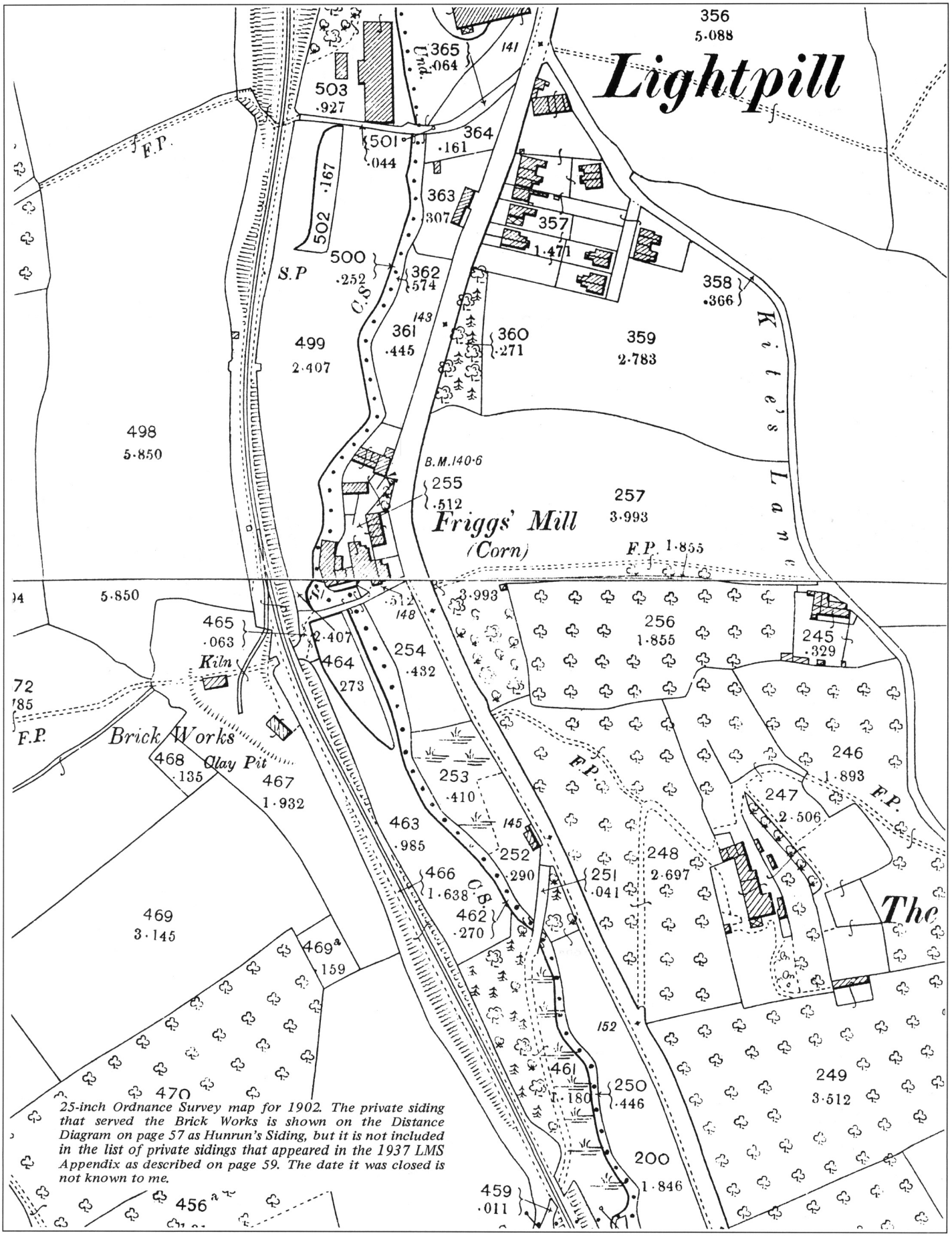
*Class 3F No. 3754, probably taken on the same day as the pictures reproduced on pages 62/63. The junction of the line to Stroud can be seen in the centre of the picture, left to Stroud, straight on to Nailsworth.* P. B. WHITEHOUSE



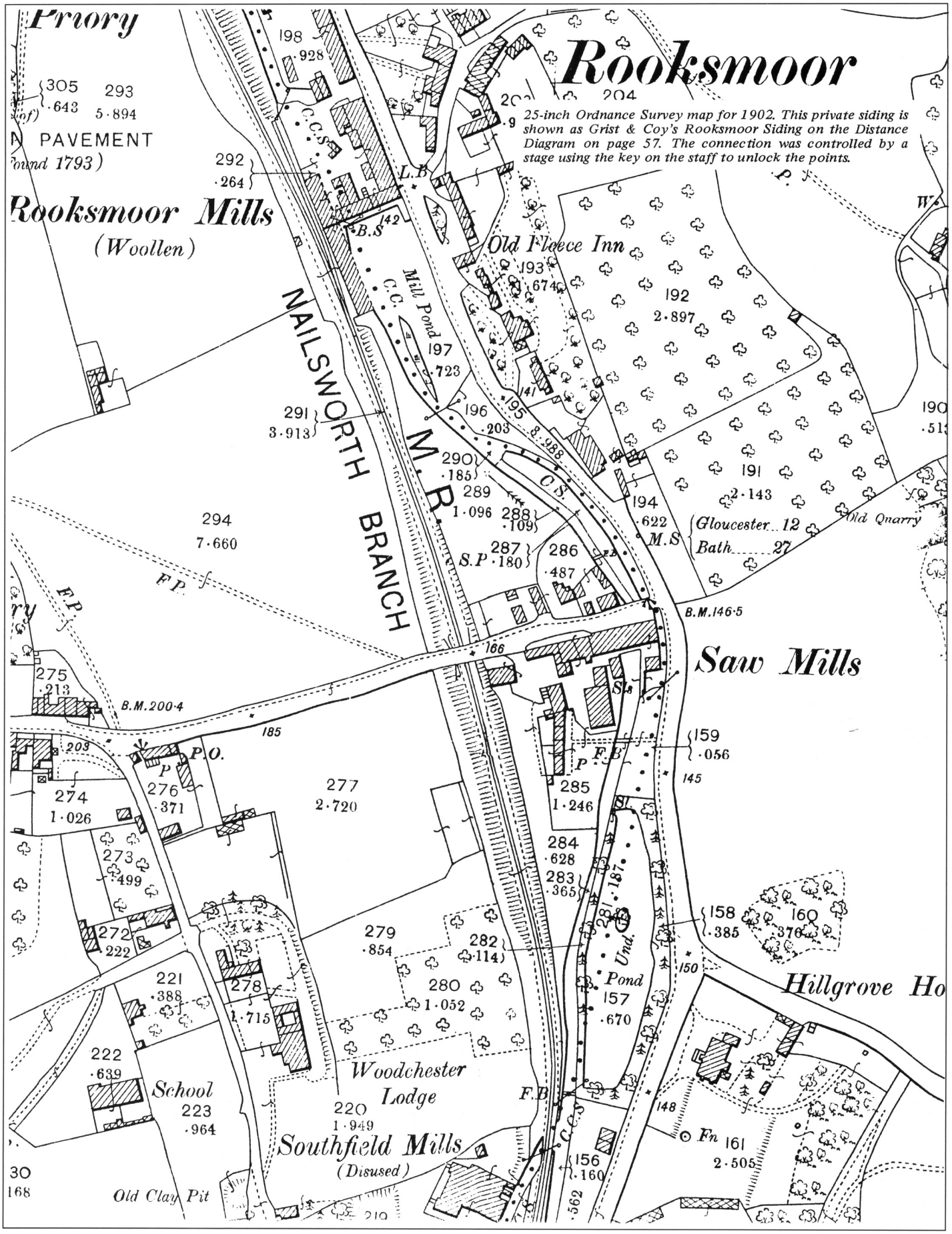
*This June 1947 picture was taken looking from the Stroud branch towards Dudbridge Junction. The home signal from the Stroud branch is seen at clear and the junction signal box can be seen in the centre of the picture. Note the checkrail on the sharp curve.*

P. B. WHITEHOUSE

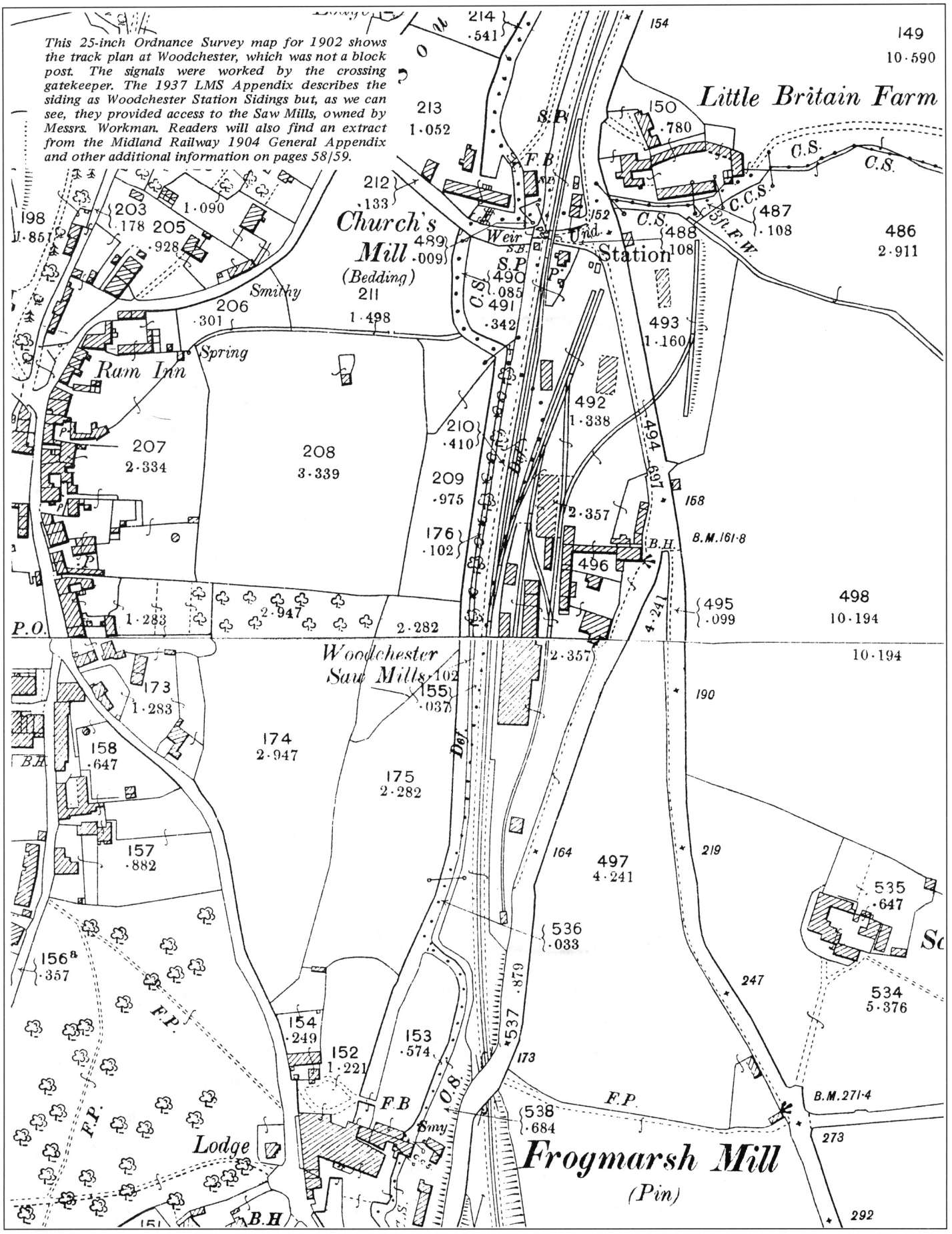
*This 25-inch Ordnance Survey map shows the Victorian arrangement for a junction between two single lines. Reference to the Distance Diagram on page 57 will show that the line to the flour mills began as a 5-chain line owned by the railway company before it became a private siding. Therefore there is no reference to them on page 59.*




*25-inch Ordnance Survey map for 1902. The private siding that served the Brick Works is shown on the Distance Diagram on page 57 as Hunrun's Siding, but it is not included in the list of private sidings that appeared in the 1937 LMS Appendix as described on page 59. The date it was closed is not known to me.*




*25-inch Ordnance Survey map for 1902. This private siding is shown as Grist & Coy's Rooksmoor Siding on the Distance Diagram on page 57. The connection was controlled by a stage using the key on the staff to unlock the points.*



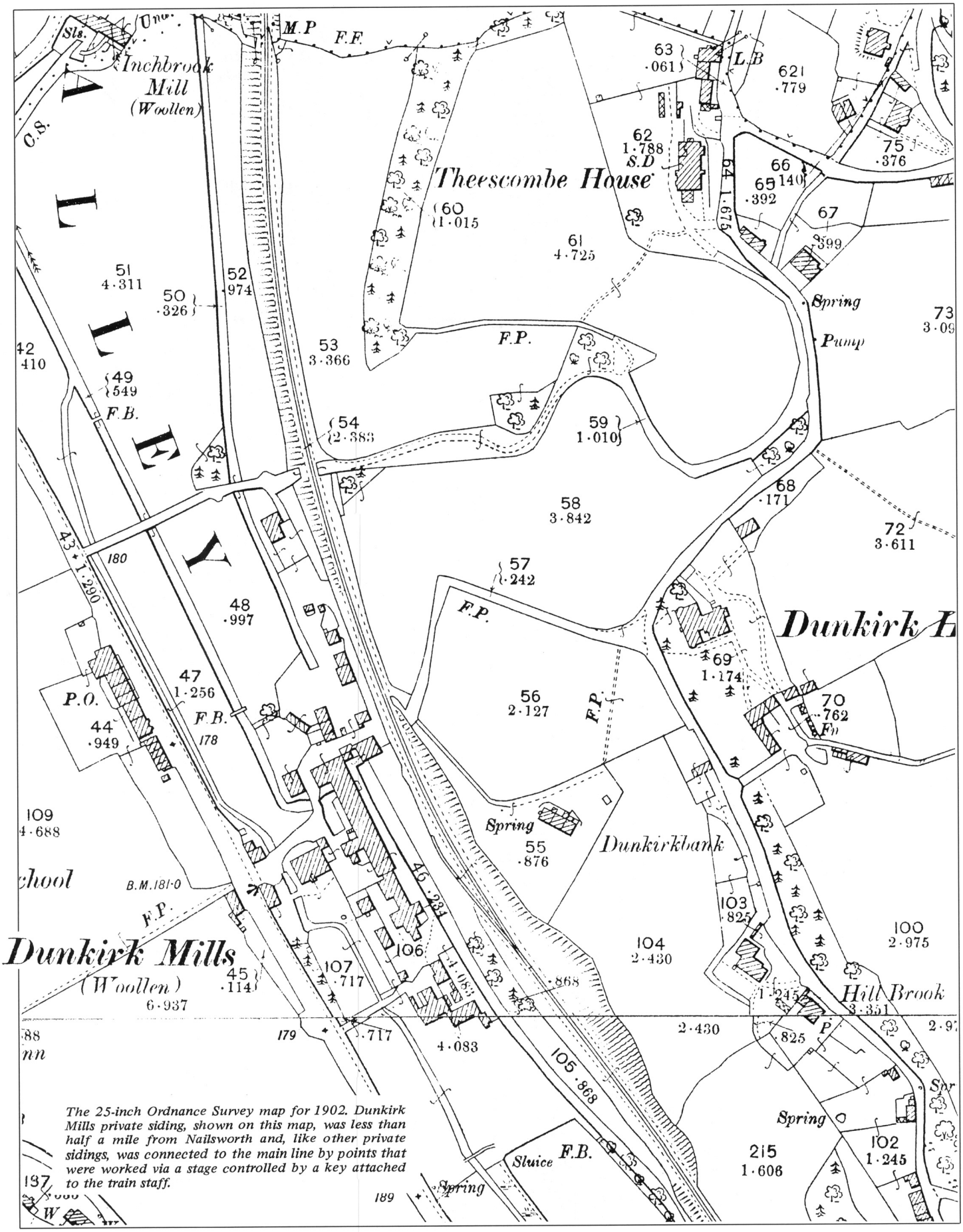

*This 25-inch Ordnance Survey map for 1902 shows the track plan at Woodchester, which was not a block post. The signals were worked by the crossing gatekeeper. The 1937 LMS Appendix describes the siding as Woodchester Station Sidings but, as we can see, they provided access to the Saw Mills, owned by Messrs. Workman. Readers will also find an extract from the Midland Railway 1904 General Appendix and other additional information on pages 58/59.*

*Woodchester was about halfway between Dudbridge and the terminus at Nailsworth. Unlike the other stations on the line, which were attractive stone buildings, Woodchester was a fairly plain wooden structure that was opened in July 1867. The station was not a block post, token or staff station but there were signals to protect the level crossing, and these were worked by the crossing gatekeeper from the small cabin seen to the right of the signals in this undated picture looking towards Nailsworth. The building to the left of the line beyond the station was Woodchester Saw Mills owned by H. Workman & Co. Ltd.*
LENS OF SUTTON

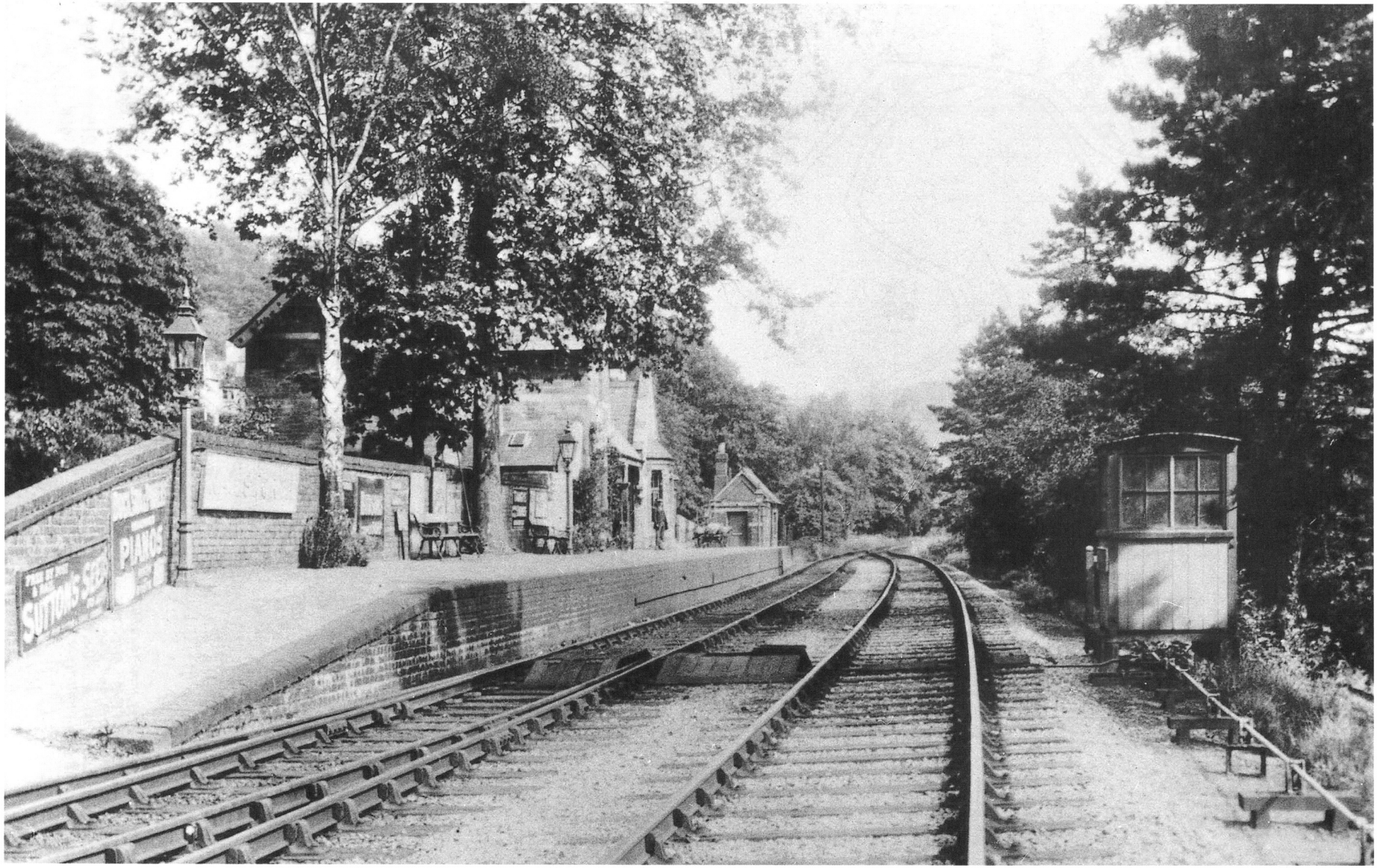
*This picture, taken during the summer of 1940, shows No. 1303, an ex-Midland Railway Johnson 0–4–4T on the Nailsworth to Stonehouse motor train. The position of the signal confirms the direction of travel but the locomotive headlamp was not at the base of the chimney, which is where I would have expected it to have been placed.*
F. M. BUTTERFIELD

Top: *This view of an unidentified motor-fitted 0–4–4T was probably taken from the wooden footbridge, described on the reverse of the print as a workmen's footbridge, seen below.* Lower: *The wooden workmen's footbridge between Woodchester and Nailsworth, photographed looking towards Stroud.*

*The 25-inch Ordnance Survey map for 1902. Shown on the Distance Diagram (reproduced on page 57) as Harris's Dyehouse Mill and in the LMS 1937 General Appendix as Newman, Hender & Co's Siding, this single road was connected to the running line and operated via a stage that was unlocked by a key on the train staff. As with all private sidings connected to the running line, there would also be trap points, but they are not shown on the OS map.*



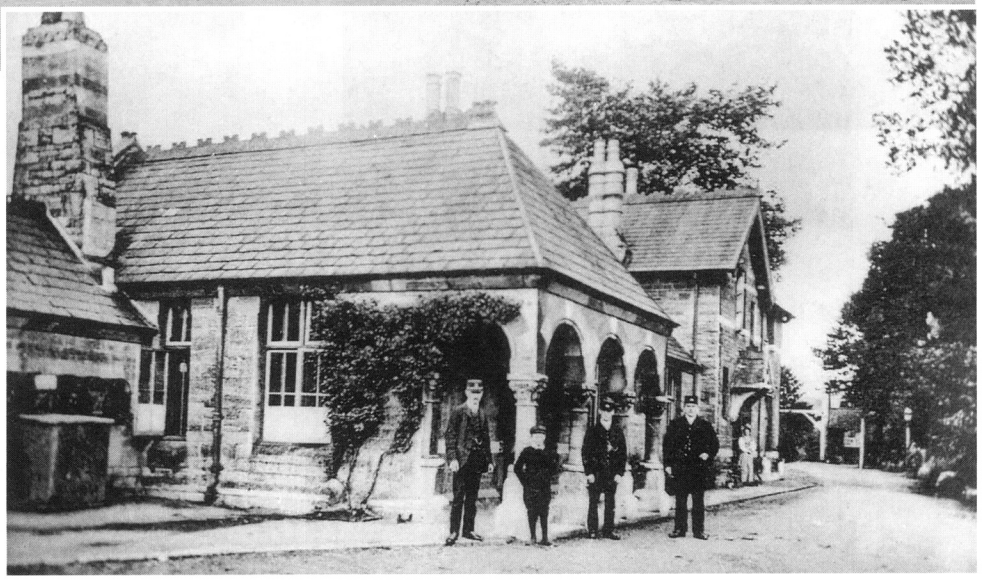

*The 25-inch Ordnance Survey map for 1902. Dunkirk Mills private siding, shown on this map, was less than half a mile from Nailsworth and, like other private sidings, was connected to the main line by points that were worked via a stage controlled by a key attached to the train staff.*




*Nailsworth was the southern terminus of the branch line from Stonehouse; it was a very attractive location with the passenger station at a higher level than the goods station. For a short period there was a signal box at Nailsworth, which was opened sometime prior to 1875 but it was closed on 13th July 1886, being replaced by a ground frame. The station also had a turntable, but by 1930 it was no longer used, the line being worked by tank engines. There was also a small timber engine shed but this was out of use by 1895 and the small water tank was moved into the goods yard. This picture was taken c.1910-14.* LENS OF SUTTON

*This picture, which was taken looking towards the end of the branch, also provides a better view of the low-level goods yard, which cannot be seen on the similar view of the station reproduced opposite.* C. L. MOWAT

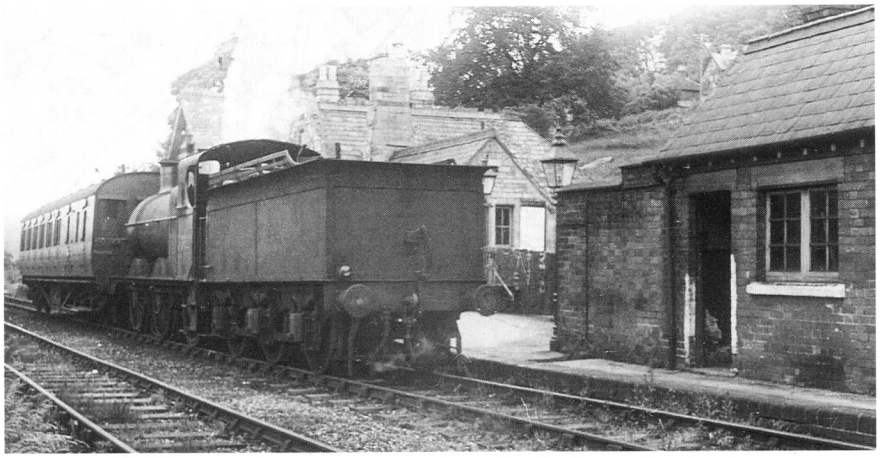
*In view of the fact that this picture and the one at the top of the page were both taken by the same photographer, and the reverse of this print is inscribed '18.8.1932', it is likely they were both taken on the same day.* C. L. MOWAT

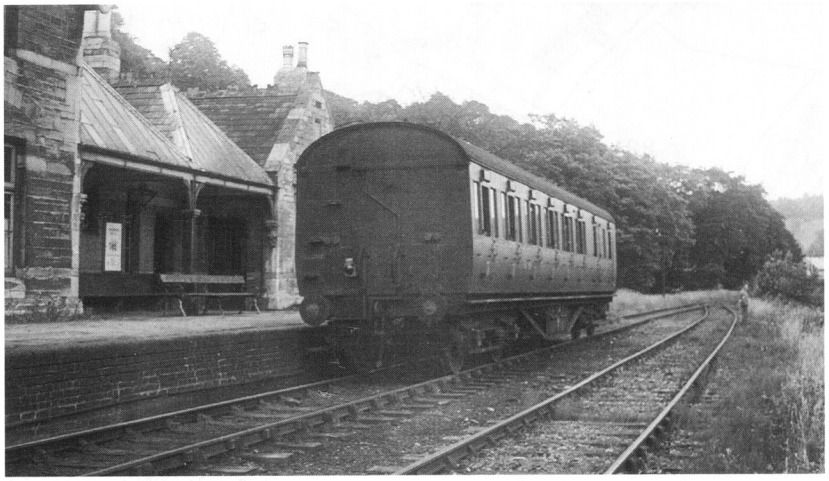


*An undated view of the exterior of Nailsworth station with the station staff. Note the loading gauge, just visible at the end of the station building.*
LENS OF SUTTON

*Nailsworth, probably photographed on 14th June 1947, the last day passenger trains ran on the branch.* P. B. WHITEHOUSE

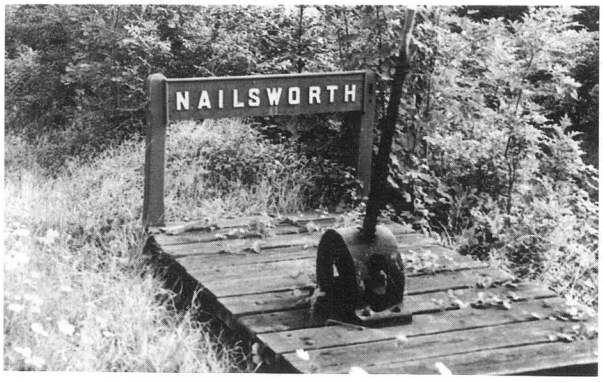
*An undated view of Nailsworth, with the low-level goods yard to the left of the picture, looking towards Stonehouse Junction.*
J. H. RUSSELL





*The three pictures on this page were probably taken on the final day of passenger services, 14th June 1947.* Top: *Class 3F No. 3754 after arrival with the branch train from Stonehouse.* Left: *After the locomotive had been uncoupled from the train, a single vehicle 3rd class motor driving trailer, it was run forward, then the points were reversed, and while this picture was being taken it was 'running round' to the other end of the train.* Bottom: *No. 3754 after it had been coupled to its train in readiness to depart. The locomotive headlamp was not in the correct position for a branch passenger train, namely on the smokebox door when running forward or on the single lamp iron in the centre of the tank close to the top of the train pipe, or vacuum pipe as it is commonly known. This was probably due to laziness of the crew while working on a sleepy branch line.*

All P. B. WHITEHOUSE




*I am not entirely sure where this single hand point lever was at Nailsworth. I suspect at the buffers end of the platform line, but I would welcome confirmation from readers.*
AUTHOR'S COLLECTION

*25-inch Ordnance Survey map for 1902.*

*This 5th July 1936 picture shows how the goods yard was at a lower level to the passenger station and also shows the locomotive water tank after it had been moved from its original position. The ground frame hut and loading gauge can also be seen in this picture together with the two ex-Midland Railway carriages that presumably were the branch set at the time.*
W. A. CAMWELL

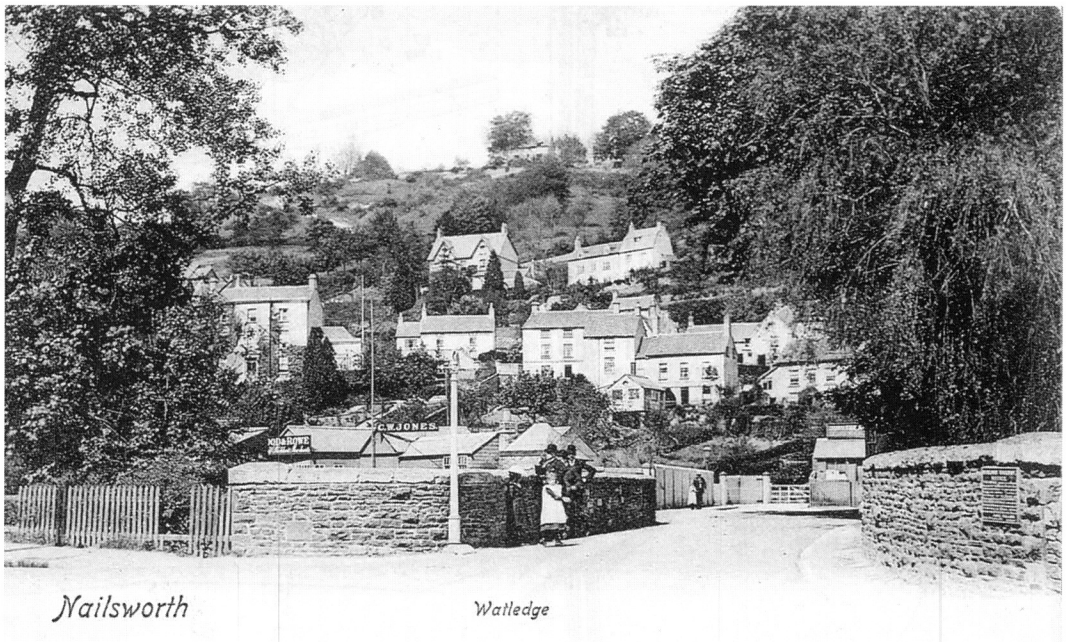
*As described above, the water tank was moved into the goods yard and this picture, taken on 31st May 1956, shows Class 3F No. 43754 taking water. This picture also shows part of the small goods yard and the frost fire used in cold weather to prevent the water supply from freezing.*
C. G. MAGGS

*Once again we see Class 3F No. 43754 on the branch, probably on 14th June 1947, but on this occasion the locomotive was not engaged on passenger services but was shunting in the goods yard. It was common practice on branch lines for one locomotive to work both passenger and freight trains, which clearly happened during the final years prior to the withdrawal of passenger services.*

P. B. WHITEHOUSE

*By 1962, with the withdrawal of many Class 3Fs, freight trains on branch lines were often worked by Class 4F 0–6–0s. This picture, taken at Nailsworth, shows No. 44167 shunting in the goods yard. Note the grass growing in the track, something that would not have been tolerated pre-war.*

C. G. MAGGS




*This view of Nailsworth, taken c.1905, shows the road approach to the station and part of the village.*

COLLECTION
R. S. CARPENTER

that the motor trains were either one or two coaches with occasionally three vehicles being used. I have no reason to disagree with what he said, but I can offer details of the coach formation as given in *LM&SR (Midland Section) Passenger Train Marshalling Arrangements*, 26th September 1927, which was prior to the introduction of the motor train service. This shows three circuit workings, Nos. 57, 58 and 59 but only two sets of carriages. The + denotes either 4- or 6-wheel stock, otherwise it was a bogie vehicle. The tables, reproduced here, require little explanation and, although I do not have a copy of the 1926 timetable, it is possible to see what happened. For example, 'a' is shown as a freight train, but in reality it was a mixed train. It would be useful to know if any earlier or later train marshalling books have survived. They provide an invaluable source of information and I am most grateful to the reader who provided me with this copy.

**STROUD AND NAILSWORTH BRANCH TRAINS.**

†Compo Brake.
†Third.

**(57)**

| | arr. a.m. | dep. a.m. | |
|---|---|---|---|
| Dudbridge | ... | 7.52 | |
| Stroud | 7.55 | 8. 5 | |
| Dudbridge | 8. 8 | 8.12 | |
| Nailsworth | 8.21 | 8.32 | |
| | | p.m. | |
| Dudbridge | 8.40 ✱ | 3.39 | |
| | p.m. | | |
| Stroud | 3.42 | 4. 8 | |
| Dudbridge | 4.11 ✱ | 7.15 a | S.O. |
| Stonehouse | 7.23 | 7.52 a | S.O. |
| Nailsworth | 8.29 | 8‡55 | S.O. |
| Dudbridge | 9‡ 2 | ... | S.O. |

a Along with No. 59.

---

Compo Brake.
†Third Brake.

**(58)** Worked by No. 59.

| | arr. a.m. | dep. a.m. | |
|---|---|---|---|
| Nailsworth | ... | 7.35 a | |
| Stonehouse | 7.56 | 8.30 b | |
| Nailsworth | 8.49 | 9.20 | |
| Dudbridge | 9.28 | 9.36 | |
| Nailsworth | 9.45 | 10. 3 | |
| Stonehouse | 10.19 | 10.55 b | |
| | | p.m. | |
| Nailsworth | 11.13 | 1.45 a | |
| | p.m. | | |
| Stonehouse | 2. 4 | 2.29 b | |
| Stroud | 2.43 | 3.30 a | |
| Stonehouse | 3.44 | 4. 5 b | |
| Stroud | 4.18 | 4 45 a | |
| Stonehouse | 5. 3 | 5.20 | |
| Stroud | 5.32 | ... | |

Out 7.37 a.m. (No. 59).

a Along with No. 59 from Dudbridge.
b Along with No. 59 to Dudbridge.

Stroud and Nailsworth Branch Trains (continued).

(59) Worked by No. 58.

| | arr. a.m. | dep. a.m. | |
|---|---|---|---|
| Stroud | ... | 7.37 a | |
| Stonehouse | 7.56 | 8.30 b | |
| Stroud | 8.46 | 9.30 | |
| Stonehouse | 9.41 | 10. 0 | |
| Stroud | 10.12 | 10 20 | |
| Stonehouse | 10.27 | 10 55 b | |
| | | p.m. | |
| Stroud | 11.10 | 1.45 a | |
| | p.m. | | |
| Stonehouse | 2. 4 | 2.29 b | |
| Nailsworth | 2.52 | 3.22 a | |
| Stonehouse | 3.44 | 4. 5 b | |
| Nailsworth | 4.27 | 4.43 a | |
| Stonehouse | 5. 3 | 6.21 | |
| Nailsworth | 6.40 | 7. 5 c | |
| Stonehouse | 7.23 | 7.52 d | |
| Nailsworth | 8.29 | ... | |

Out No. 58.

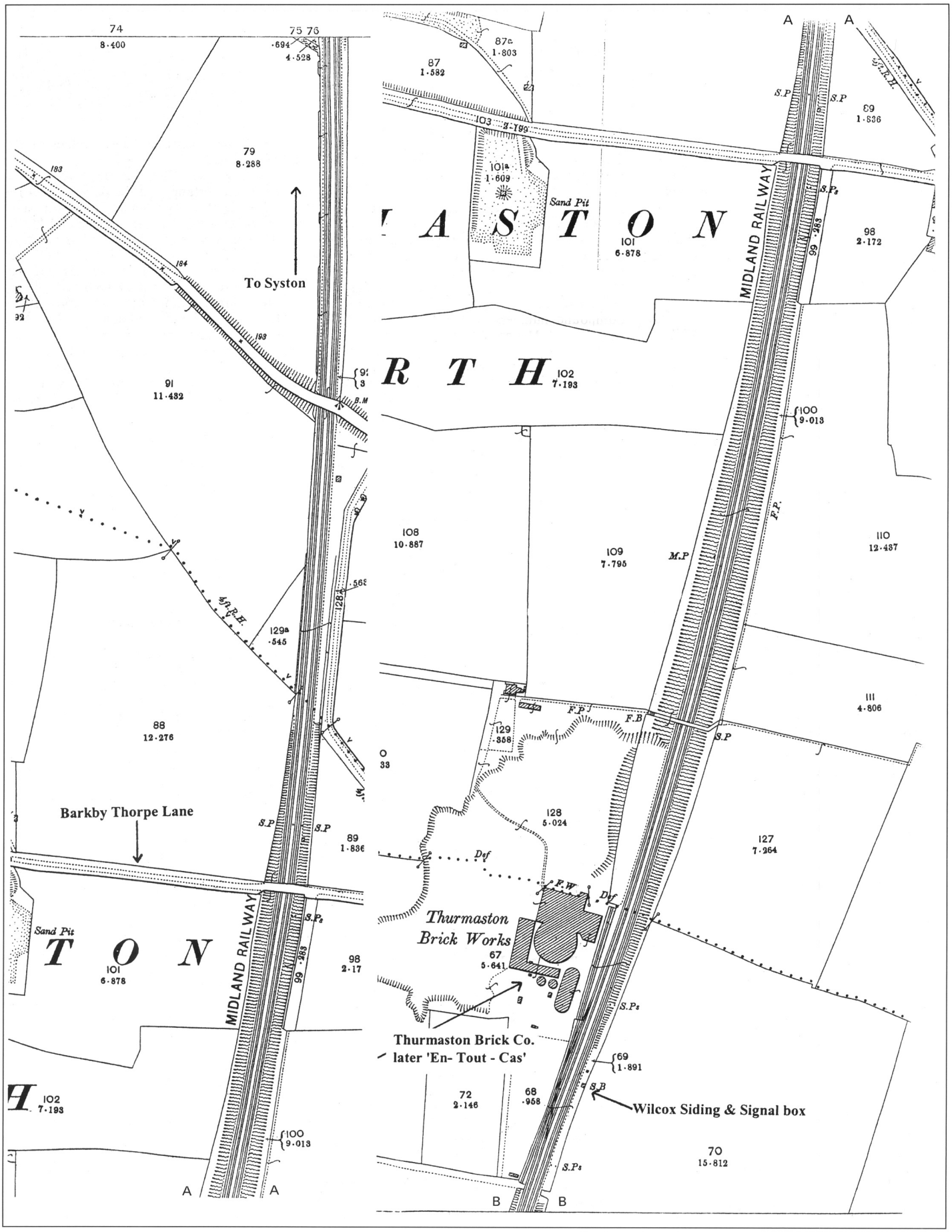
a Along with No. 58 from Dudbridge.
b Along with No. 58 to Dudbridge.
c Along with No. 57 from Dudbridge (S.O.).
d Along with No. 57 (S.O.).

---

Van (parcels traffic).

| | arr. a.m. | dep. a.m. | |
|---|---|---|---|
| Gloucester | | 7.50 | |
| Stonehouse | 8.11 | 8.30 | |
| | | p.m. | |
| Stroud | 8.46 | 4. 5 | S. |
| | p.m. | | |
| Nailsworth | 4.27 | 4.43 | S. |
| Stonehouse | 5. 3 | 5.20 | S. |
| Stroud | 5.32 | 6.33 a | S. |
| Gloucester | 7.35 | ... | |

a Freight train.




*Reduced from 25-inch Ordnance Survey map for 1903.*

## Some additional notes regarding
# READERS' COLLECTIONS

by GILES BROWN

The ten photographs from the collection of John Edgington featured in *Midland Record* No. 21 interested me greatly as a former resident of Leicester. I believe they were taken from two overbridges between Thurmaston signal box and Syston South Junction.

The annotated map hopefully illustrates the location where each photograph was taken and other interesting features. The distance diagram included with the original article confirms that there were two signal boxes in the vicinity and both are featured in the photographs. As ever on these matters, John Gough's *Midland Chronology* provides invaluable information on the opening/closing dates of these and there is no need for repetition here. Suffice to say that the final replacement box at Thurmaston was opened in January 1898 in the same month that Wilcox Siding was opened. Although not numbered in *MR* No. 21, I will use a numbering sequence, starting on the left of each page.

**Humberstone Lane – Photos 1-7**
Photos 1, 3, 5 and 6 were taken looking south from this bridge and 2, 4 and 7 were taken looking in the opposite direction. Photo 6 is the only one that appears to feature Thurmaston signal box which, as the distance diagram indicates, were on the down side of the line and controlled access to sidings on both up and down sides that served the brick works in the area – the chimneys for these can be seen in Photos 1, 3 and 6. The box signalled both passenger and goods lines.

**Barkby Thorpe Lane – Photos 8-10**
Photos 8 and 10 were taken looking south from this bridge, with No. 9 looking in the opposite direction.

**NOTES TO ACCOMPANY EACH PHOTO**

**No. 1 – Humberstone Lane, looking south, 19th April 1912**
The locomotive allocation (Nottingham) is further confirmation that this could be a Nottingham express and the lighting suggests a late-morning photograph.

The October 1912 WTT shows a 9.35 a.m. Express departure from Leicester to Nottingham and Derby that called at Syston, Barrow, Loughborough, Kegworth and Trent where the train divided. There was also an 11.34 a.m. Express from Leicester to Nottingham which called at Loughborough and Trent from 12.3 to 12.5, after which there was a 12.15 p.m. 'Express Passenger' departure from Trent to Derby. The train featured here could be one of these workings.

**No. 2 – Humberstone Lane, looking north, 3rd April 1912**
The interesting feature here is the Thurmaston up distant signals seen above the rear of the train – a train is signalled on the goods line at the same time. The run of signal pulley posts for the signal wires from Thurmaston signal box to work these are visible alongside the bottom of the cutting adjacent to the down passenger line. For those with a glass, Wilcox Siding signal box can just be seen between the posts of the first telegraph pole.

**No. 3 – Humberstone Lane, looking south, 6th May 1912**
The light in this photograph suggests an afternoon train, although the use of what is stated to be a Nottingham locomotive (1022) on a Manchester train would be unusual. Perhaps the locomotive number was recorded incorrectly as Compound numbers 1013-1021 inclusive were stationed at Manchester in 1914? In October 1912, the Manchester Expresses left St. Pancras at 10.00 a.m., 10.6 a.m., 12 noon, 12.15 p.m., 2.30 p.m. and 4.30 p.m. If this is a Manchester train, judging by the light, it is most likely to be the 12 noon which departed from Leicester at 2.0 p.m. The train has all the look of a 'limited load service' (which the 12 noon service was) and for which a Compound was booked to haul 260 tons. The 12.15 p.m. which departed Leicester at 2.45 p.m. (the 12 noon ran non-stop to Leicester) called at St. Albans, Luton, Bedford, Wellingborough and Kettering.

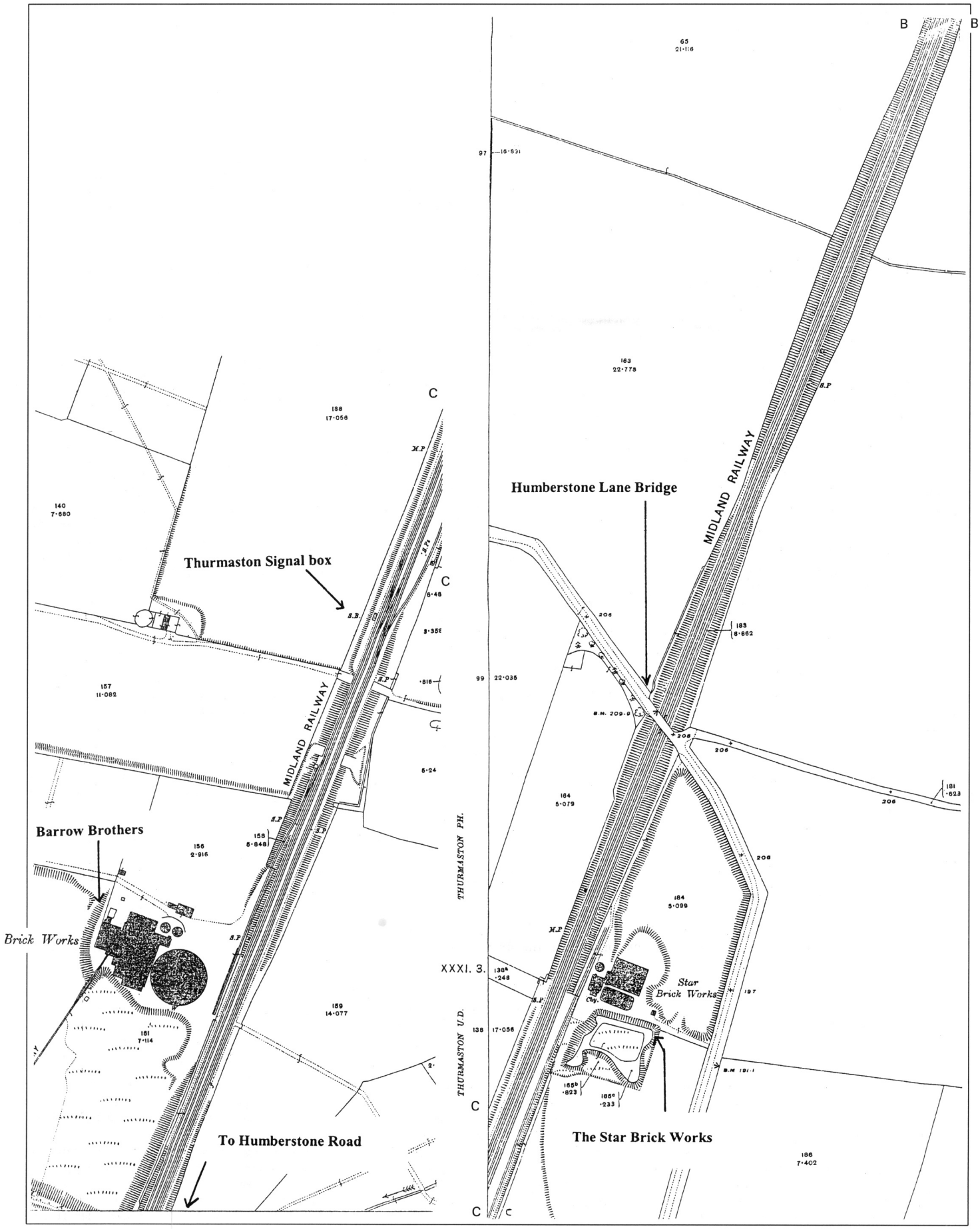
**No. 4 – Humberstone Lane, looking north, undated, featuring a Johnson 2–4–0**
The third vehicle does not have continuous running boards at the upper level and is thought to be a parcel van.

**Photo 5 – Humberstone Lane, looking south, 6th May 1912**
The appearance of the trees with seemingly no leaves suggests a date earlier in the year than May. Scotch Expresses running via Leicester departed from St. Pancras at 9.30 a.m. (Leicester 11.22 p.m.–11.26 a.m.), 11.30 a.m. (Leicester 1.24 p.m. – 1.28 p.m.) and 1.30 p.m. (Leicester 3.16 p.m. – 3.19 p.m.). The use of a Leeds Compound north of Leicester would be consistent with a Scotch Express. The October 1912 WTT contains a table showing 'Light engines leave Kentish Town to work trains as under' – the implication to the author of this heading is that the workings listed are those worked by engines stationed at Kentish Town. The entries in the table against the 9.30 a.m. and 11.30 a.m. departures from St. Pancras (the two morning Scotch Expresses) are shown as 'St. Pancras to Leicester – Saturdays only', suggesting that on other days of the week the trains were worked by Leicester engines that were turned and serviced at St. Pancras station. The further implication is that on weekdays the 9.30 a.m. and 11.30 a.m. Scotch Expresses were worked by Leicester engines which would have given way to Leeds engines at Leicester. The train shown here is thought to be one of these two trains with a Leeds engine. The 1.30 p.m. departure is shown as 'St. Pancras to Leeds', suggesting this train was worked throughout by a Kentish Town engine and therefore the train in the photograph is unlikely to be the 1.30 p.m. departure from St. Pancras.

**No. 6 – Humberstone Lane, looking south, 11th June 1912**
As stated above, Thurmaston signal box is visible in the distance, on the down side of the line. The light in this photograph suggests a late-morning view and the October 1912 WTT shows several possible identities for the train seen here. There was a 10.45 a.m. all stations passenger from Leicester to Nottingham, but perhaps more likely is the 11.16 Tuesdays-only Leicester–Melton Mowbray or the 11.16 Fridays-only Leicester–Stamford. As there were no facilities to turn engines at either Melton or Stamford, then tender-first running would have been required in one direction on both of these trains, and this may explain the tender-first running of No. 674 here. There was a 2.40 p.m. Tuesdays and Fridays-only return working from Melton to Leicester (on Fridays there was a 1.15 p.m. empty stock from Stamford to Melton to form the 2.40 p.m. departure). The inclusion of horse-boxes would have been appropriate for a train serving an area well known for hunting and large country houses. The use of a tender engine on this working was perhaps not unusual given that only six 0–4–4 tanks (1833 class 1907 Nos. 1365-70 inclusive) were allocated to Leicester in 1914.

**No. 7 – Humberstone Lane, looking north, 11th June 1912**
Wilcox Siding signal box is visible on the up side in the distance along with the up distant signals for Thurmaston signal box. On the left of the passenger lines, above the train, are the chimneys and workings of the brickworks. Regarding the possible identity of the train, there was a 1.42 p.m. Express from Derby to St. Pancras and given that No. 502 was a Derby engine, this could well have been this service; there were few, if any, other trains that started from Derby or changed engines there during late morning/early afternoon when it appears this photograph was taken. Wilcox Siding signal box in July 1913 was only open from 9.0 a.m. until 1.0 p.m. and only signalled the passenger lines; access to the sidings it served was only from the passenger lines as the widening to four tracks on this section had taken place on the east side of the line. The July 1909 WTT shows the 5.30 a.m. stopping goods from Toton to Knighton Junction, calling at Wilcox Siding 'for 5 minutes and leaving at 10.5 a.m.'. This train departed from Syston, its penultimate stop before Wilcox Siding, at 9.50 a.m. By October 1912, the 5.30 a.m. from Toton ceased to run and it appears that Wilcox Siding was served by the 10.50 a.m. goods from Syston to Wigston.

**No. 8 – Barkby Thorpe Lane, looking south, 19th June 1912**
The chimneys above the rear of the train are those featured in the previous photograph as the line curves through the cutting to emerge onto the embankment that is to the rear of the train in the previous photograph. The lattice




*Reduced from 25-inch Ordnance Survey map for 1903.*

*This and the second photograph are thought to have been taken to the south of Thurmaston signal box; the signal box is faintly visible on the original print of this photograph, to the rear of the train on the down side of the line. The train is described on the rear of the print as a 'Peterborough–Leicester working'. At the far right of the print, the Humberstone Lane bridge, from which photographs 1-7 were taken, can faintly be seen. Of interest to some readers will be the existence of 20ft rails employed on the down goods line (immediately to the right of the train) even at this late date. The locomotive was allocated to Derby until 1933. It was fitted with oil-burning equipment and this fact can be used to date the photograph reasonably accurately. No. 495 was fitted for oil burning in late May 1921 as a result of the coal strike then taking place and the equipment was removed soon after the strike had ended in July. The locomotive was not fitted for oil burning in the next coal strike in 1926.* L&GRP

footbridge over the cutting appears on the map enclosed and can just be seen on the horizon in the previous photograph. In October 1912 there was a 10.10 a.m. departure from Nuneaton that arrived at Leicester at 10.40 a.m. and it is suggested this could have conveyed the LNWR coaches referred to in the original caption. Regarding onward movement of the LNWR coaches to Nottingham, there then followed a 10.45 a.m. departure from Leicester which, after calling at all stations except Attenborough, arrived at Nottingham at 11.48 a.m.

**No. 9 – Barkby Thorpe Lane, looking south, undated, featuring No. 3805**

Judging by the light, this photograph was taken in the late morning and as such may well feature the 10.50 a.m. goods from Syston to Wigston mentioned in the notes to Photo 7 above. There are several reasons for this suggestion. Firstly, there were few goods trains scheduled on the up line in this area during the morning, but most importantly, the 10.50 a.m. was the only one scheduled on the passenger line on which this train is running. The running of the train on the passenger line would have been essential to serve Wilcox Siding, as there was no connection to this siding from the goods line. The 10.50 a.m. from Syston was a return of the 9.55 a.m. Wigston–Leicester Bell Lane that then continued light engine to Syston to work the former service. The freshly fired engine could suggest a departure from Syston. 3805 was allocated to Leicester in 1914 and could well have been used on a short trip working prior to an evening turn such as a fitted goods working.

The distant signal is for Wilcox Siding with clearly no signal on the goods lines for reasons mentioned in the notes to Photo 7. The posts for the signal wire pulleys can be seen alongside the up goods line with the boards over the sleepers on both goods lines where the wires pass under them to reach the post. The appearance of this signal post may shed some more light on the issue of whether Midland signal posts were white or lemon chrome – in this instance there appears to be a clear difference between the white of the rear of the distant signal and the suggested lemon chrome of the signal post.

The bridge in the background carries Barkby Lane over the railway. Immediately in front of this bridge are the distant signals for Syston South Junction with there being a splitting distant for the passenger lines located between the up passenger and down goods lines for the junction of the line to Melton (together with fogman's hut) while a single post/arm distant suffices for the down goods distant.

**No. 10 – Barkby Thorpe Lane, looking south, undated, featuring No. 734**

If taken on the same day as the previous two photographs, it is suggested that the train featured here was the 9.30 a.m. from St. Pancras as this would have passed Syston at around 11.40 a.m. This train had a booked load of 230 tons for a class 3 engine north of Leicester and, judging by the appearance of the train on this occasion, the load was approaching or at the limit, being at least 8 coaches (average of 25 tons per vehicle). No. 734 was a Leeds engine at this time and could have taken over at Leicester.

Picking up the comments in the caption, if the engine had taken over at Leicester, there would not be a need at this time, under normal circumstances, for larger passenger engines to take on coal there before taking their return working. Engines were frequently changed at Leicester and worked back to St. Pancras (99 miles), Leeds (97 miles) or Manchester (90 miles). For example, a Compound burning something like 35 lb of coal per mile and with a tender capacity of 7 tons (15,680 lbs) would have had a range of over 350 miles (allowing for light engine running at stations to and from shed) which was well within the return mileage from Leeds or Manchester to Leicester. The figures for the Belpaire, featured in this photo running with a Johnson bogie tender, had a coal capacity of 5 tons (11,200 lbs). With coal consumption of the same 35 lbs per mile, this would have had a range of over 250 miles, well within the travel distance of a return journey from Leeds to Leicester. The bogie tenders fitted to the Belpaires contained the much quoted increase in water capacity (in the case of 734, it is suggested this was 4,100 gallons) but interestingly, the coal capacity was also increased by one ton when compared with the 4 ton, 6-wheel, 3,500 gallon tenders coupled to some members of the class. This additional one ton of coal would have made round trips from Leeds to Leicester on a tender full of

*Taken from the same location as the first photograph, this features what is described as 'an up Derby' train. No. 1035 was a Leeds engine at the time the photograph was taken and it is more likely the train was an up express from Scotland. The vehicle behind the tender was perhaps of North British origin and two dining cars can be seen in the centre of the train.* L&GRP

coal a more comfortable reality for crews and operating staff and provided a much needed cost saving to the company in hauling loco coal – the previous four-ton capacity provided a 'reliable' range of less than 200 miles with a definite requirement to take on coal at Leicester before returning home.

Taking coal at Leicester by visiting engines would have been disadvantageous to the Midland for at least two reasons. Firstly, any coal taken at Leicester would have had to be hauled there, at a cost to the company, from at best the Notts/Derbyshire coalfield. A full tender of coal taken on at Leeds would have attracted a much lower transport cost to the railway, being supplied more locally from pits such as Manvers or Featherstone, which are known to have supplied coal to the Midland. Secondly, the main line through Leicester was very congested with heavy goods and passenger traffic, and access for engines off passenger trains to the shed here to take on coal and turn involved crossing running lines.

Although I cannot locate my notes taken from the Locomotive Committee minutes, I am sure I have read a reference to the 'current practice' at Leicester when the installation of a larger turntable was being contemplated for use by 'larger passenger engines' such as Belpaires and Compounds. Prior to this being installed, these were taken out to turn on the Knighton triangle rather than trying to gain access to the shed across the goods lines. There were three turntables at Leicester shed; two inside the roundhouses and a third outside. The latter was installed as a 42ft diameter turntable and then increased initially to 50ft and finally to 60ft. Belpaires and Compounds required 50ft turntables.

**Locomotive Allocations**

Using the allocations detailed in Stephen Summerson's work on Midland locomotives, the allocations of the locomotives featured in the photographs are as follows:

| *Photo No.* | *Loco No.* | *Allocation 1908* | *Allocation 1914* |
|---|---|---|---|
| 1 | 1021 | Nottingham | Nottingham |
| 2 | 627 | Leicester | Leicester |
| 3 | 1022 | Nottingham | Nottingham |
| 4 | 277 | Leicester | Leicester |
| 5 | 1031 | Leeds | Leeds |
| 6 | 502 | Derby | Derby |
| 7 | 528 | Leicester | Leicester |
| 8 | 674 | Leicester | Leicester |
| 9 | 3805 | Cricklewood | Leicester |
| 10 | 734 | Leeds | Leeds |

Although the photographs were taken in 1912 and therefore at a different date to either of the two allocation lists shown, there is only one locomotive that changed sheds during the period and therefore an accurate position can be deduced from these lists for the period when the photographs were taken.

**Thurmaston – some further information about brick making in the local area**

The chimneys of brick works feature prominently in several of the photographs and the enclosed copies of the Ordnance Survey maps for 1903 and 1914 included with this narrative clearly show three brickworks adjacent to the line. The following items of local information associated with brick making in the area may be of interest to readers.

Kelly's Director for 1914 describes the soil in Thurmaston as 'various consisting of brick clay (now becoming valuable), sand and gravel and gypsum, the subsoil being gravel' which, along with the close proximity of the area to a ready market for bricks in the rapidly expanding town of Leicester, accounted for the preponderance of brick manufacturing in the area.

In 1914, Kelly's listed the following brick manufacturing establishments in Thurmaston:

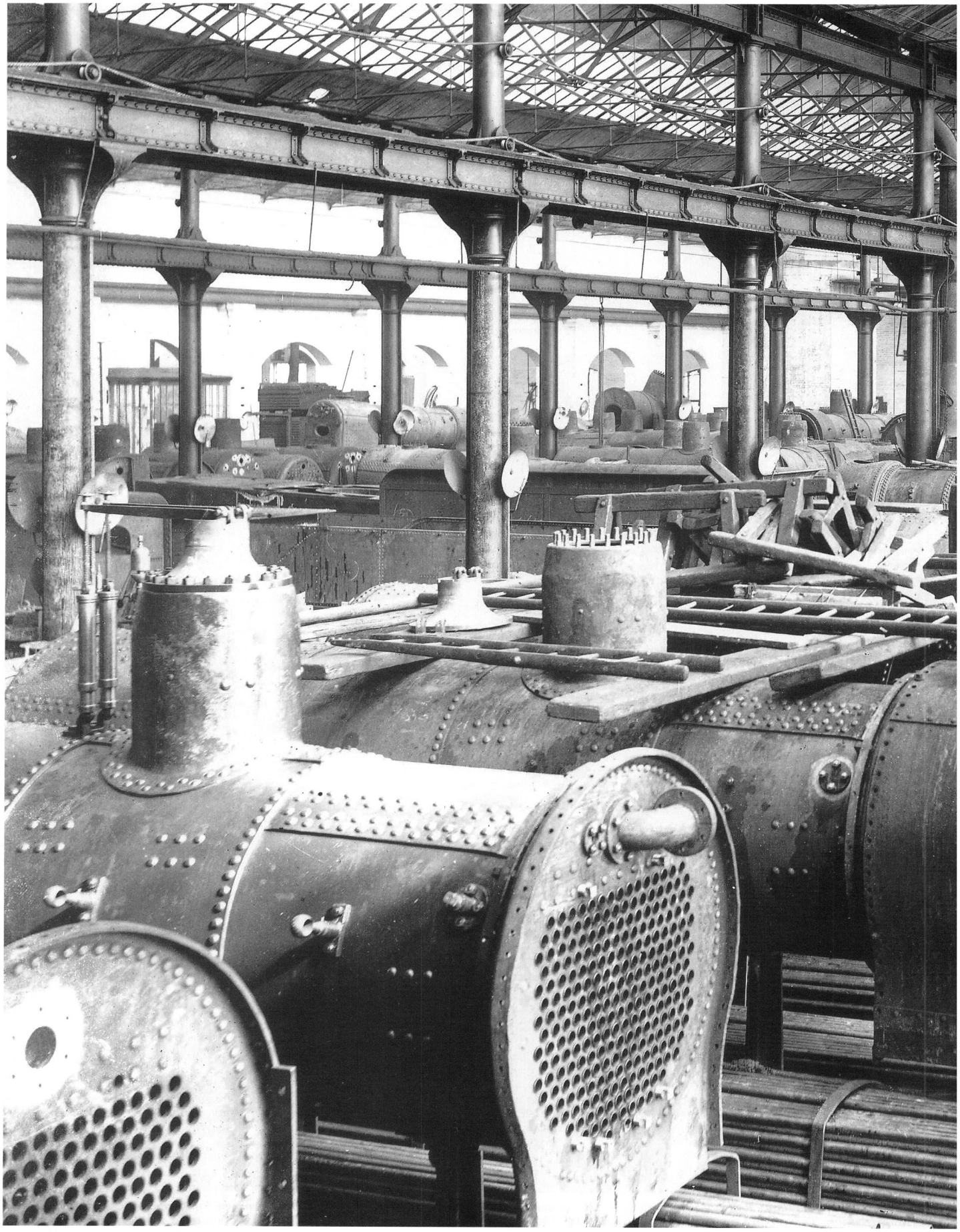
| | |
|---|---|
| Thurmaston Brick Co. | Owned by W. G. Birkinshaw & Co. and whose chimneys and/or works appear in Photos 7, 8 and 10. |
| Barrow Brothers | Listed as 'Brick makers'. Possibly the brickworks whose chimneys appear on the down (west) side of the line in Photos 2 and 3 (an unnamed brick works on Ordnance Survey map but labelled as such for this article). |
| The Star Brick Works | Located on the up (east) side of the line out of picture in Photos 2 and 3. |

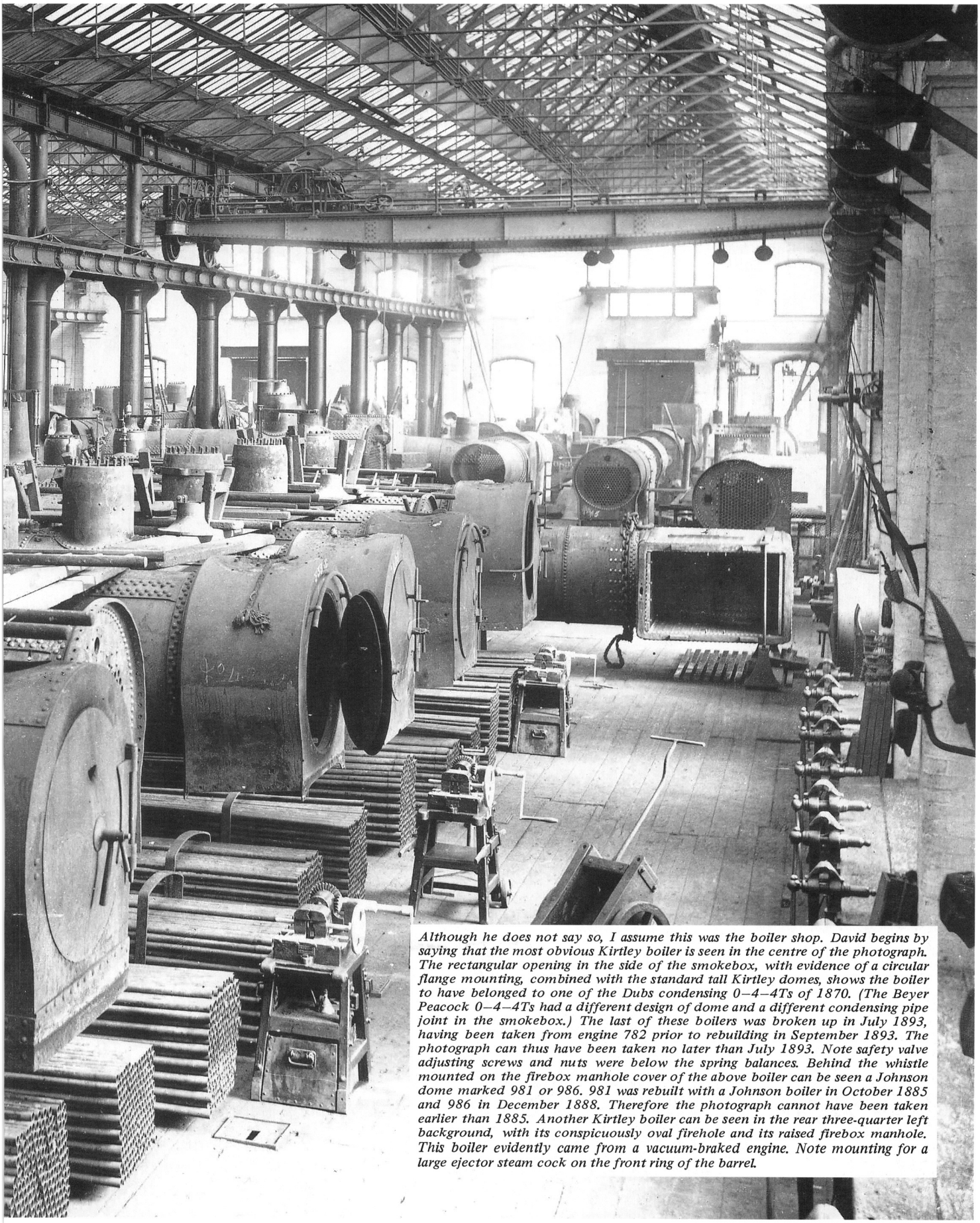
By 1927, Kelly's carried the notice that the Thurmaston Brick Works site had been taken over by a new company called 'En–Tout–Cas'. By 1932 the latter company was listed as 'timber merchants, poultry house makers, patent tennis court makers and landscape gardeners'. It is suggested that the existence of clay used for tennis court surfaces would have led to the firm becoming established in what was a former brick works.

My thanks to Brian Sadler, a resident of Thurmaston, for help in confirming some of the locations.

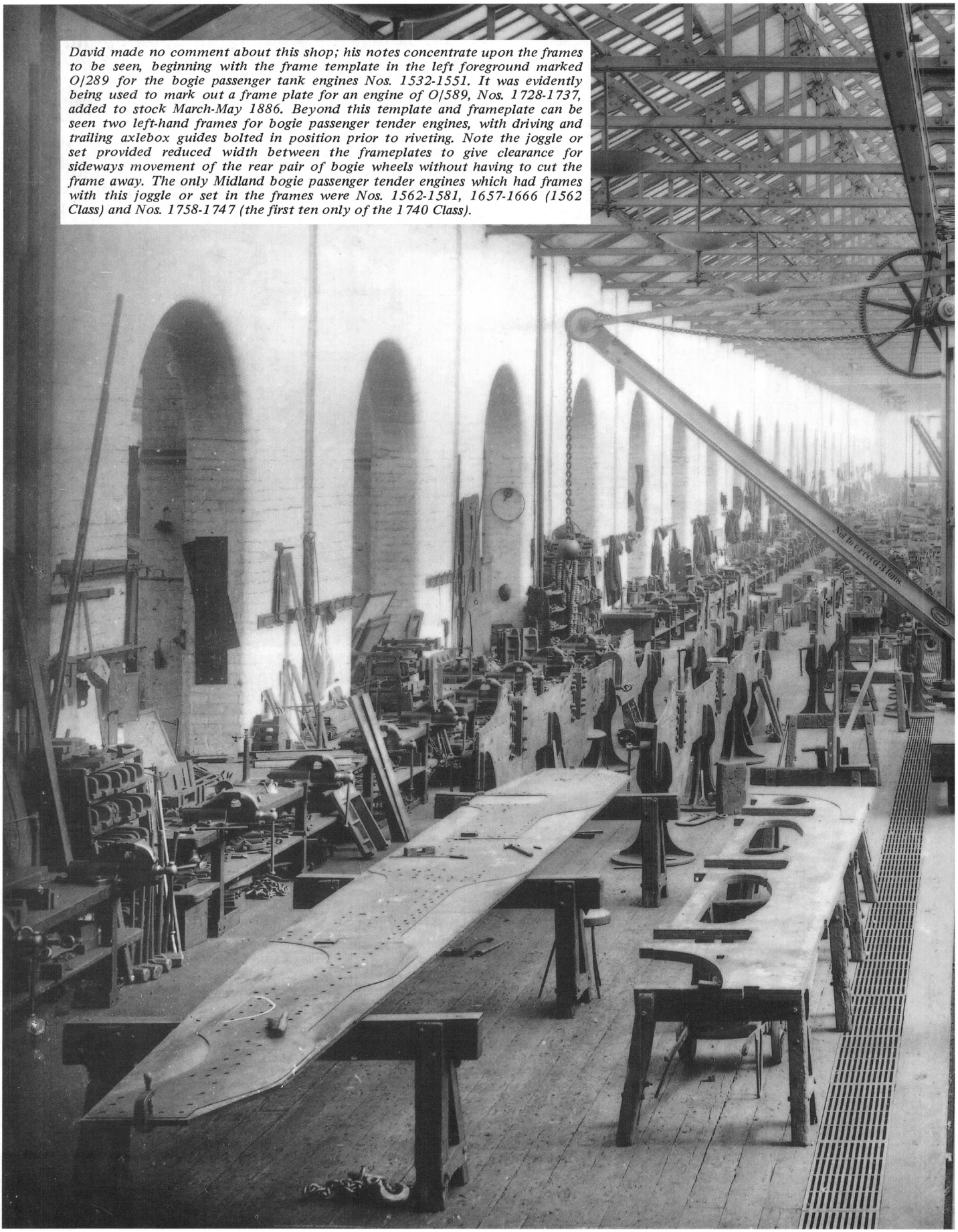
*Although the old Midland Railway's 0–6–0s generally remained on the Midland Division, it was not unknown for them to be allocated to the Western Division. This picture was taken on 3rd September 1955 at the old London & North Western Railway locomotive shed at Monument Lane, code 3E.*

COLLECTION R. J. ESSERY

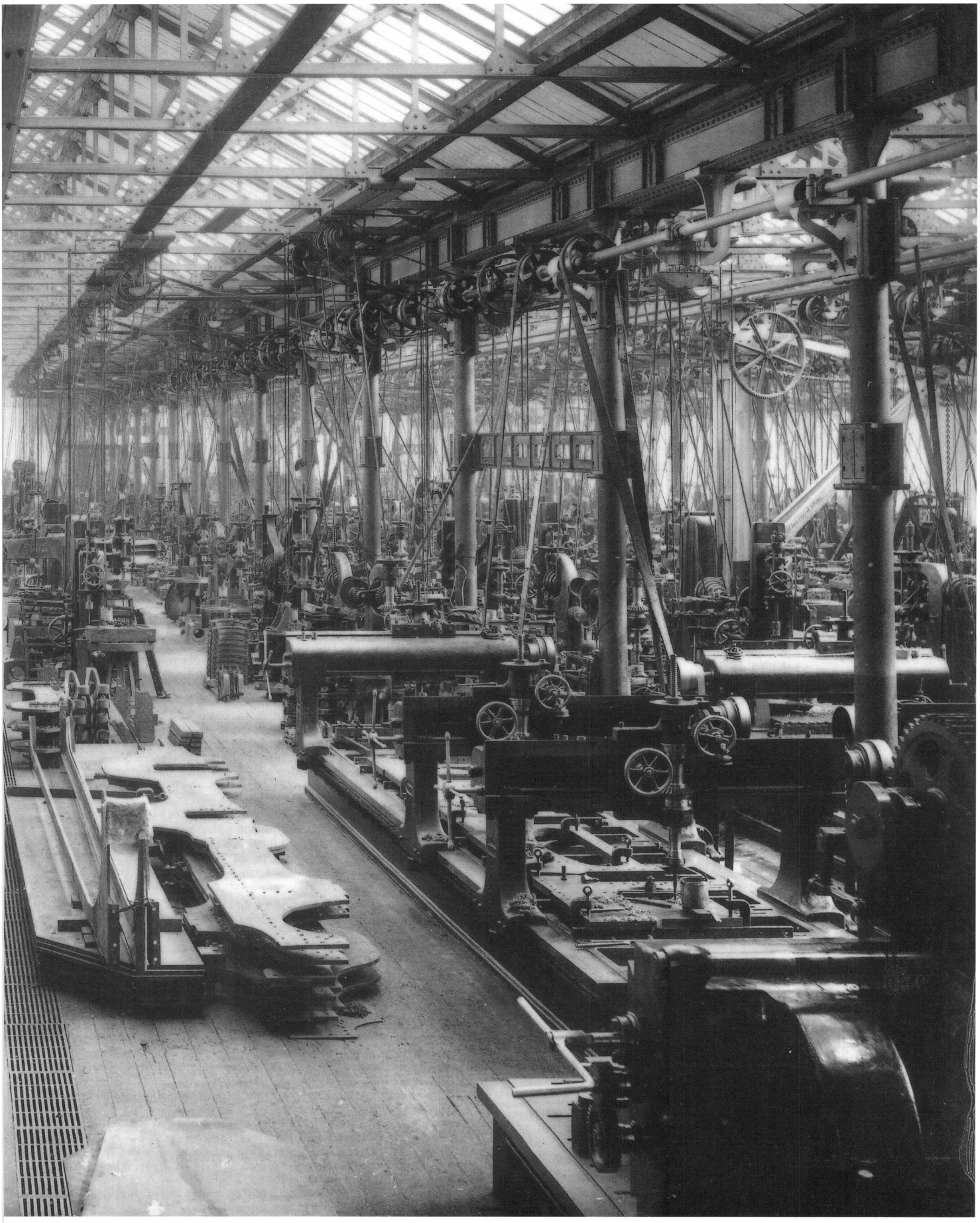




*Although he does not say so, I assume this was the boiler shop. David begins by saying that the most obvious Kirtley boiler is seen in the centre of the photograph. The rectangular opening in the side of the smokebox, with evidence of a circular flange mounting, combined with the standard tall Kirtley domes, shows the boiler to have belonged to one of the Dubs condensing 0–4–4Ts of 1870. (The Beyer Peacock 0–4–4Ts had a different design of dome and a different condensing pipe joint in the smokebox.) The last of these boilers was broken up in July 1893, having been taken from engine 782 prior to rebuilding in September 1893. The photograph can thus have been taken no later than July 1893. Note safety valve adjusting screws and nuts were below the spring balances. Behind the whistle mounted on the firebox manhole cover of the above boiler can be seen a Johnson dome marked 981 or 986. 981 was rebuilt with a Johnson boiler in October 1885 and 986 in December 1888. Therefore the photograph cannot have been taken earlier than 1885. Another Kirtley boiler can be seen in the rear three-quarter left background, with its conspicuously oval firehole and its raised firebox manhole. This boiler evidently came from a vacuum-braked engine. Note mounting for a large ejector steam cock on the front ring of the barrel.*




*David made no comment about this shop; his notes concentrate upon the frames to be seen, beginning with the frame template in the left foreground marked O/289 for the bogie passenger tank engines Nos. 1532-1551. It was evidently being used to mark out a frame plate for an engine of O/589, Nos. 1728-1737, added to stock March-May 1886. Beyond this template and frameplate can be seen two left-hand frames for bogie passenger tender engines, with driving and trailing axlebox guides bolted in position prior to riveting. Note the joggle or set provided reduced width between the frameplates to give clearance for sideways movement of the rear pair of bogie wheels without having to cut the frame away. The only Midland bogie passenger tender engines which had frames with this joggle or set in the frames were Nos. 1562-1581, 1657-1666 (1562 Class) and Nos. 1758-1747 (the first ten only of the 1740 Class).*



*In his letter, which begins below, contributor John S. Dales refers to the Cadbury Works and Austin railway systems. Unfortunately, I cannot offer any other pictures of Austin Works locomotives, but I can include these four views of Cadbury locomotives that worked on the company's private sidings at Bournville. The first picture shows Nos. 1, 6 and 10 photographed when in store at Raddlebarn Road Sidings, in early 1963.*

# By the way . . .

*Miscellaneous observations concerning previous issues*

## MIDLAND RECORD No. 24

Regarding the article on 'The Midland Railway's early access to London', another note on King's Cross pre St. Pancras days. I found F. G. Cockman's book, *The Railway Age in Bedfordshire*, in Luton library and find it most scholarly and entertaining. On page 61 he quotes a notice in the *Bedfordshire Times* of 7th July 1868 advertising the new service to Moorgate Street. It ends with:

> 'Applications for Season Tickets to be made to Mr. C. Mills, Midland Agent, Great Northern Station, King's Cross, London. The Main Line Through Trains will continue to run to and from the Great Northern station at King's Cross until further notice.
>
> James Allport
> General Manager
> Derby, July 1868'

So I think that suggests that regular Midland Railway services used King's Cross.

F. G. Cockman also mentions that the band of the Coldstream Guards played at the opening of the Bedford & Northampton Railway in 1872.

*Andrew Surry*

## MIDLAND RECORD No. 25

I am very taken with your piece on Ambergate – a place with which I was fairly familiar. I remember a visit in the late 1970s with Divisional Services Inspector to investigate a seemingly unmetered gas supply to one of the houses in Midland Terrace.

As to the pictures, the large waiting room on Platform 1 (the down Manchester) shown so clearly on pages 56 and 58 was completely destroyed by fire on 5th April 1950 and replaced by a temporary structure as seen on page 62. The top picture on the facing page with an engine number 44380 should obviously be dated 1959 – I doubt if Richard Casserley was old enough to have a camera in 1939!

*Keith Miles*
*Seaton*

Further to your interesting article on Austin Motor Works, Longbridge, may I offer a little further information.

Having lived close by to the erstwhile Austin Works all of my life, I have held a keen interest in local railway activities since the late 1940s. Without seeming too pendantic, the livery of the private works locomotive was indeed green. Lining and lettering was, however, cream. This livery was also applied to the fleet of company lorries and works service vehicles prior to the formation of British Leyland in 1968.

Although the Austin Motor Company was formed in 1905, it was not until the First World War, when involved with the production of munitions, that the works rapidly expanded. A private internal rail system developed at North Works, South Works and West Works. The various works systems were all accessed by the Halesowen Branch.

The initial fleet were a motley collection of ex-contractors locomotives, mostly elderly Manning-Wardle 0–6–0STs. By the 1920s/30s these had mostly been replaced by a more updated albeit secondhand fleet. In fact, the Austin Works only ever received three new steam locomotives during the 1930s, being 'named' *Austin 1* (Kitson 0–6–0ST), *Austin II* (Hunslet 0–6–0ST) and *Austin 3* (Hunslet 0–6–0ST). All others retained the names as received. During the 1950s the steam stud consisted of (in addition to the three already mentioned):

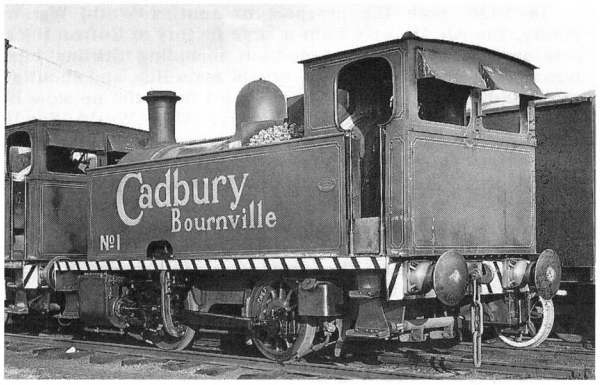
*Dunragit* (Manning Wardle 0–6–0ST 1891)
*Emily* (Manning Wardle 0–6–0ST 1899)
*Abernant* (Manning Wardle 0–6–0ST 1921)
*Ada II* (Davenport 0–6–0T 1943 ex-USA Trans. Corp.)
*No. 5* (Davenport 0–6–0T 1943 ex-USA Trans. Corp.)
*Victor* (Bagnall 0–6–0ST 1950)
*Vulcan* (Bagnall 0–6–0ST 1950)

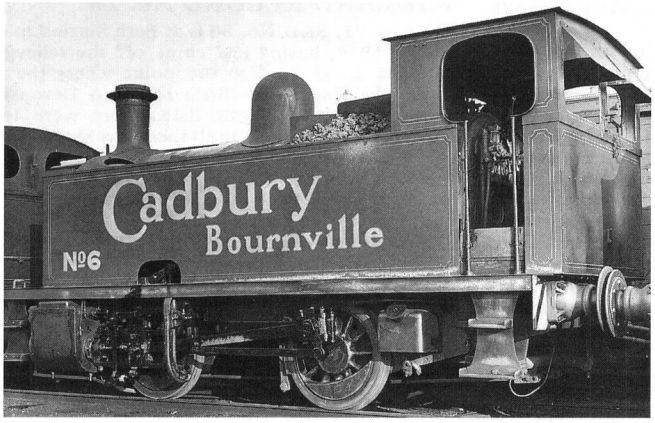
*Dunragit* and *Emily*, the earlier Manning Wardle pair, were out of use by the early 1950s and were stored, in a steadily rusting condition, in the coal siding at West Works. *Emily* was the last to go in 1958.

Of the remaining eight locomotives, five were always steamed daily for Works operations that extended 24 hours per day Monday through to Friday. Weekends were reserved for maintenance and cleaning. The fleet were kept immaculate, as the superb photographs by John Edgington and others demonstrate.

The steam fleet were indeed interesting locomotives. The USA Davenports were similar to those more familiar as the Southampton Dock Tanks. The two Bagnalls came to Longbridge in 1957. Happily, *Austin I, Abernant, Victor* and *Vulcan* survive in preservation. Steam operations had ceased at Longbridge by 1971.

From the late 1960s an equally motley collection of diesel shunters, again mostly secondhand, took over operations.




Top: *Cadbury No. 1, built by Avonside, also photographed at Raddlebarn Road Sidings in 1963.* Middle: *Cadbury No. 6, another 0–4–0 tank engine built by Avonside, photographed at Raddlebarn Road Sidings in 1963.* Bottom: *Cadbury No. 10, built by Peckett and photographed at Raddlebarn Road Sidings in 1963.*

All CADBURY BROS. LTD. Cty. PAUL COTTRELL

In 1938, with the prospect of another World War becoming a reality, the Air Ministry built a large factory at Cofton Hackett for the sole purpose of aircraft production, including 'Stirling' bombers. This was next to the Birmingham–Bristol main line, and about a mile south of Halesowen Junction. A single point from the up slow line allowed access to sidings in the new factory. When World War II ceased in 1945, the Austin Works took over this factory for engine and gearbox production. Originally known as the 'Aero', it was soon to be called 'East Works'. From 1938 onwards the sidings here were worked by a Fowler 0–4–0 diesel shunter that carried the name *Austin IV*. East Works was never served by Austin steam shunters although BR steam locomotives, usually an ex-Midland 3F 0–6–0, entered these sidings. *Austin IV* would enter the works to remove wagons of metal swarf and other scrap. The wagons would be marshalled in the sidings until sufficient were available for collection. The BR engine would then propel empties from Halesowen Junction 'wrong way' down the 'Up Slow' line to enter the sidings. Full wagons were then hauled back in the Birmingham direction. *Austin IV* remained at East Works for about 30 years. One wonders how these sidings were shunted when *Austin IV* was undergoing overhaul?

One final memory that will always remain with me is the South Works incline. Almost at Halesowen Junction, a sharp curve on the private network followed, at a much higher level, and ran parallel with the Birmingham–Bristol main line, a steeply-graded single-track incline. I'm not sure of the actual gradient, but I feel 1 in 25 to be a fair estimate. The incline extended about a quarter of a mile. At the summit the track curved sharply away on to the 'test track' area (also known as the 'Flying Ground'). Locomotives could only take a few wagons at a time up this ferocious gradient. To observe a Bagnall or Davenport making the ascent was indeed breathtaking. This incline was lifted around the mid-1960s and converted into a roadway. Today the Austin Works, as Rover, is no more.

In recent years, two fine books have been published covering Bournville and the Cadbury Works system. I live with the hope that a companion Austin Works rail network book will appear.

*John S. Dales*
*Cofton Hackett, Worcs.*

In *Midland Record* No. 25 I raised the question of regulations that applied when privately-owned locomotives ran over railway company lines. I failed to look at the General Appendix, my only excuse being that an impending house move probably dominated my thoughts at the time! Fortunately, regular contributor John Edgington sent me a copy taken from page 54 of the LMS General Appendix to the Working Time Table, which sets out the regulations that applied.

*Editor*

## MIDLAND RECORD No. 26

On page 91, S&D No. 80 is at Bath Single Line Junction on test on 6th March 1914, having just come off the relieving goods line from Bath Midland Road yard at the point where the 1:50 climb commenced along the single-track S&D route to Devonshire and thence Combe Down Tunnels. At this date, there were two signalboxes at Bath Junction. On the S&D itself there was Single Line Jct. Box, immediately out of the picture to the left, on the far side of the converging S&D tracks. The Midland had the larger Bath Junction box, away to the right of this view and sited on the far (north) side of the Bath to Mangotsfield line, which can be seen to the left of No. 80, running between the telegraph pole and the wagons on Bath gas works sidings. In April 1924

**Examination of live stock at junctions with other Companies.**—Loads of live stock received at junctions from other Companies must be examined at the time of exchange to see that the animals are in good condition. If anything is noticed amiss with the animals, the attention of the other Company's servants must be drawn to the fact at the time.

**REGULATIONS CONCERNING PRIVATELY-OWNED LOCOMOTIVES OR CRANES ON OWN WHEELS AT WORK ON THE L.M.S. RAILWAY.**

The following regulations must be observed by all concerned in the operation of privately-owned locomotives or cranes, required to work over L.M.S. running lines.

By the term "running line" is meant any line which is used for the conveyance of passenger or through freight traffic.

All private owners' men whose duty it is to work on, or with, their locomotives or cranes, over L.M.S. running lines, must be examined annually, the examination to be carried out jointly by Operating and Motive Power Inspectors, the result of the examination to be reported to their Divisional Superintendent on the form specially provided for the purpose.

This examination is to be arranged by the District Controller, at a date and time agreed with the owners, subsequent annual examinations to fall within the comparative quarter of the previous year. It will include an eye-sight test with the standard dot and colour card and will generally be so conducted as to show that the men are in good health. They must be in possession of a copy of the L.M.S. Rule Book, together with any local instructions concerning their work on L.M.S. lines, and be thoroughly conversant with those rules and special instructions which most directly concern them.

The owners' locomotives or cranes must be examined at the same time, and on advice from the District Controller, the District Locomotive Superintendent, or Running Shed Foreman acting in that capacity, will arrange accordingly. The District Goods Managers should also be satisfied that the engines and cranes conform to the load gauge requirements and the regulations on page 3 of the Vice-President's circular, dated May 1st, 1931, E.R.O. 39840, "Privately-owned locomotive engines or cranes on own wheels", and that Regulation 12 on page 4 of that circular is observed. The District Loco Superintendent or Running Shed Foreman acting in that capacity must sign the certificate E.R.O. 48032.

The Divisional Superintendent must be advised of the result of the examination, a copy to be sent to the District Controller to enable him to keep the local office posted with up-to-date information concerning the authority for owners' engines entering on to our lines.

The District Locomotive Superintendent or Running Shed Foreman acting in that capacity, will keep a record of the examination, showing each engine or crane number or name separately, and whether satisfactory to run to the next examination or not. If not, the reason must be stated and full information reported specially to the Divisional Superintendent to enable him to advise the owners of the limitations and of what is required to remove them. In such cases the Divisional Superintendent will follow up in respect of the withdrawal of such locomotives or cranes at the termination of the period decided on, and will arrange the examination prior to the re-entry of such locomotives or cranes, on to L.M.S. running lines.

No privately-owned locomotive or steam crane must be allowed to enter on to the L.M.S running lines unless it has been examined and passed, nor must any private owners' men working on or with privately-owned locomotives be allowed to do so on L.M.S. running lines until passed.

**NOTE.—So far as the Northern Division is concerned all arrangements in regard to private firms locomotives are made and records kept by the Divisional Superintendent of Motive Power, Galsgow, instead of by the District Locomotive Superintendents or Running Shed Foreman, as shown above.**

the LMS opened a combined Bath Junction box, sited on the triangle of ground within the diverging routes.

The original print (published fully in Ian Allan's *Locomotives Illustrated No. 74 – Somerset & Dorset Locomotives*) incorporated the entire length of the test train, which was unbanked and appeared to number some 31 vehicles excluding brake van, the centre of the train being obscured by wagons on the dead-end siding just visible beyond the PW hut in your print. The load including coal (or stone – looks a pale colour?) and merchandise. Interestingly, the 1920 WTT quoted the maximum load for these engines, unbanked, on this section as 14 mineral, 30 goods or 40 empties, so it would be interesting to know how this heavy test train fared. This view also showed the original MR Bath Junction box in the background.

The tablet catcher is extended to pick up the tablet for the imminent single-line section through the tunnels to Midford, from the tablet apparatus immediately behind the photographer's position. The bowler-hatted inspector leans out to observe the 'snatch', while the fireman, although looking round to judge the distance to the catcher apparatus, is positioned so that he can easily look down rearwards to either confirm the 'snatch' or follow the trajectory of the tablet pouch down the embankment if it is knocked from the stand but not caught cleanly. The distant 'bowler' is stood at the top of a footpath which ascended from Lower Bristol Road, which the train will cross shortly after passing the S&D box; he is perhaps a senior member of Bath S&D shed staff, possibly acting as 'minder' to the photographer.

The view of No. 80 is of interest in itself, as there are relatively few views of the 1914 series 2–8–0s running in their earliest days. I have recently examined all the known pre-1930 images of this series assembled on Russ Garner's research CDROM, in preparation for a model of No. 81 in its final days with tender cab (incidentally, photographic evidence suggests that this tender cab lasted at least to 1922, although 1920 is often quoted for the last removal). Despite published assertions that these engines were delivered with screw couplings which were replaced not long after the class had all been delivered, this remains the only early view of one of this series with such couplings that I have seen, all other views, including official Derby poses and other 'as delivered' views, show three-link couplings. I believe this was a special fitting on No. 80 for test purposes – it is rather surprising to see it evidently swinging against the stay on the pony truck brake rodding.

No. 80 has a blank buffer plank; early views of Nos. 81 and 84 show the Derby-style 'SD' in serif lettering (which was starting to replace sans-serif from c.1914), by c.1920 they all appear to have been re-lettered 'SDJR' in Highbridge style. The close-spaced 'SDJR' on the tender was also Derby styling, and at repainting Highbridge would re-letter with wider spacing, again by c.1920. The cabside numerals are transfers. I think the earliest use of these, since the 1914 superheater 'rebuilds' of 4–4–0s Nos. 70 and 71 were delivered with traditional brass cabside numerals. The 2–8–0s duly received replacement brass numerals with repaints as they came through Highbridge between 1917 and 1920 – although the last three superheater 4–4–0s, 67-69, were delivered in 1921 with cabside transfers and never received brass numerals; neither did the 4F 'Armstrongs' delivered in 1922.

The white stripe above the coupling appears to be a centre marker for the indicator shelter; there is a faintly discernible white alignment mark on the platform.

Derby official views of No. 80 and early views of other members show that they were delivered with three lamp irons above the buffer beam; these were very soon removed by Highbridge, being redundant for the unique SDJR lamp codes.

The burnished smokebox door ring and strap hinges were a relieving decorative feature on all these engines as delivered, as apparently were black-painted flutes on the motion.

The engine retains original height boiler fittings, but for all examples the chimney lip would shortly be removed and the raised MR-style cab ventilator replaced by a sliding type (as later adopted by the LMS); apparently the dome covers were also slightly flattened, although photo evidence of this is conflicting. These changes allowed the locos to be shedded at Radstock for their first year or so, until a strengthened bridge permitted access to Bath shed.

Incidentally, I am uncertain what is the nature of the metal upstand in the foreground, which in the original print appear to carry two pivoted rods which enclose the signal wires.

It is sobering to reflect on the occasion during the dying days of the S&DJR in November 1929, when badly-steaming sister engine No. 89 of the 1925 series ran away down the bank in charge of a train, the engine crew having been stifled during the slow passage of Combe Down Tunnel. Although it safely negotiated the right-hand turn onto the goods line at this junction, driver Henry Jennings was killed in the ensuing pile-up in Bath Yard, which also killed yard Inspector Norman and an unfortunate LMS clerk, Jack Loader, who had chosen a bad time to take a short cut through the yard.

Inevitably, this entire section of former industrial Bath riverside, incorporating the former gasworks, Stothert and Pitt's crane works and sundry other premises, is currently the subject of a major urban regeneration project called Bath Riverside. It always fascinated me when I lived in Bath 1969-76; I do not know how much of the old MR/S&D infrastructure at the junction survives now.

On page 93 there is further SDJR interest; in the upper picture, No. 492 appears to be heading an express off the Somerset and Dorset line. The first and sixth vehicles appear to be SDJR six-wheel full brakes; these existed in both elliptical and arc-roof versions, the latter type being seen here. The profile of the elliptical roof matched that of carriages four and five in this train, which appear to be SDJR 7-compartment thirds with end luggage compartments (and neither lavatory nor corridor connections!). The arc-roofed third vehicle looks like another 7-compartment third, lacking lavatory, of MR or SDJR origin. The seventh vehicle looks like a 6-wheel third, again S&D or MR arc roof, the remaining two clerestory vehicles obviously being of MR origin.

*Steve Duckworth*
*Sheffield*

Pages 32/33: The OS map must be before May 1907 when tram routes to Washwood Heath and Alum Rock were opened.

Pages 41 & 44. I think these were a series of photographs taken by the Derby photographer to show the effect of different speeds when locos were taking water. (Page 44 top – no sign of water being picked up. Note old head code for 'mineral'.)

Page 53. Inside keyed track. Joint chair appears to have got lost.

Page 67. Spelling of Carlton & Netherfield – there is no 'e' in Carlton.

Page 89. Line 5 of caption – final '1' of number is missing.

*John Edgington*
*York*

*Due to an editorial failure, the dates of the D. J. Norton pictures were not published. The details are given below.* *Bob Essery*

Page 1 – No. 42326 21A near Washwood Heath Junction. 16th August 1954.
Page 3 – 3052 21A Washwood Heath Sidings. 23rd April 1949.
Pages 10/11 – East view from Washwood Heath Junction box. 31st May 1961.
Page 16 – Washwood Heath Junction. 2nd June 1961.
Page 17 (top) – West view from Washwood Heath Junction box. 2nd June 1961.
Page 18 (top) – Vew from railcar near Washwood Heath Junction. 9th May 1955.
Page 15 (middle) – Washwood Heath Viaduct. 12th May 1961.
Page 26 (bottom left-hand) – Washwood Heath Sidings No. 1 box. 12th May 1961.
Page 27 – North view from Washwood Heath Sidings No. 1 box. 12th May 1961.
Pages 28/29 – South view from Washwood Heath Sidings No. 1 box. 12th May 1961.
Page 30 (top) – Washwood Heath box. 5th May 1961.
Page 30 (bottom) – Washwood Heath box from east. 5th May 1961.
Page 34 – Washwood Heath box from Down Main. 5th May 1961.
Page 35 – Washwood Heath box from Metro Cammell Branch. 5th May 1961.

In the caption to the picture of Bleasby on page 71, you refer to the ground frame working the signals protecting the level crossing as a four-lever frame. In fact there is one more lever (total five), No. 3, which is reversed in the frame. It provided the interlocking between the gates and the protecting signals.

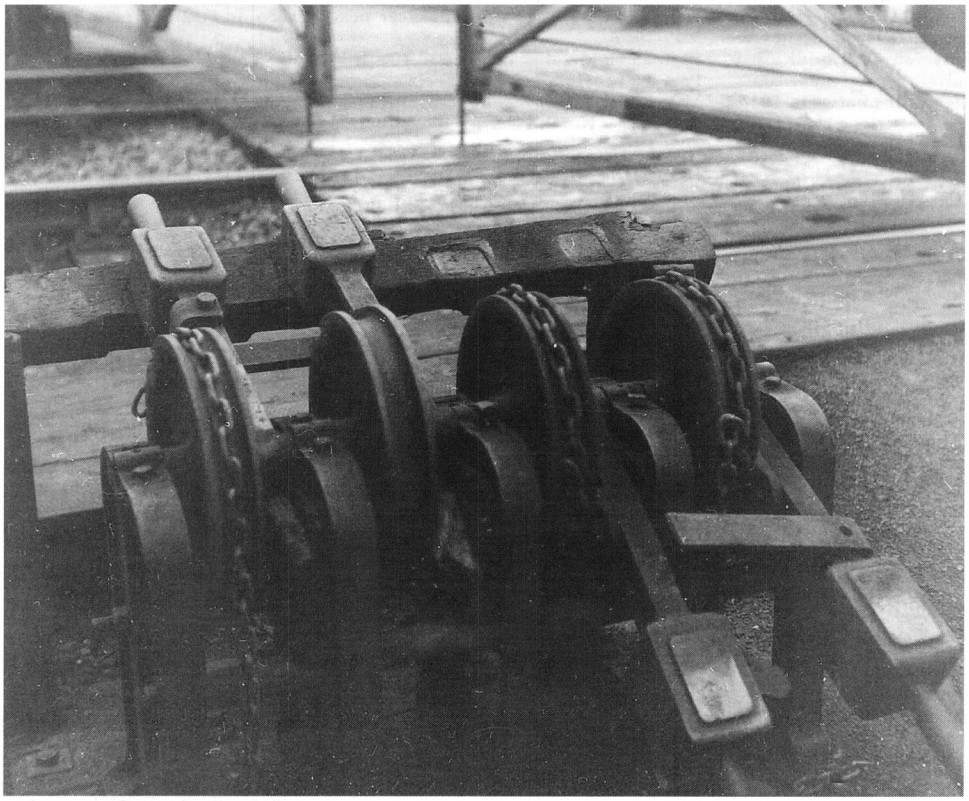
Note also the very unusual arrangement of balance weights behind the frame and in front of the crossing keeper's hut.

Prior to the installation of this frame, Bleasby had been one of the last places to have Midland Railway 'throw-over' levers to work the signals. These are illustrated in the photographs given to me by my friend the late Colin Betts. Whilst not of top quality, they depict a remarkable survivor. This pattern of throw-over lever to operate wire-worked signal had been quite common on the MR (another long-surviving example was at the level crossing at Maxstoke), but by 1950 most had been replaced.

The levers operate a single wire (and thus are very different from continental style double-wire apparatus). Only simple interlocking was possible. A lug bolted to the outer lever at each end of the frame (working the distant signal) passed behind the inner lever (for the home signal) so that the distant lever could not be turned over until the home lever had first been thrown to 'clear'.

The gates were worked by hand, and were not interlocked with these levers.

*Mike Christensen*
*Leamington Spa*

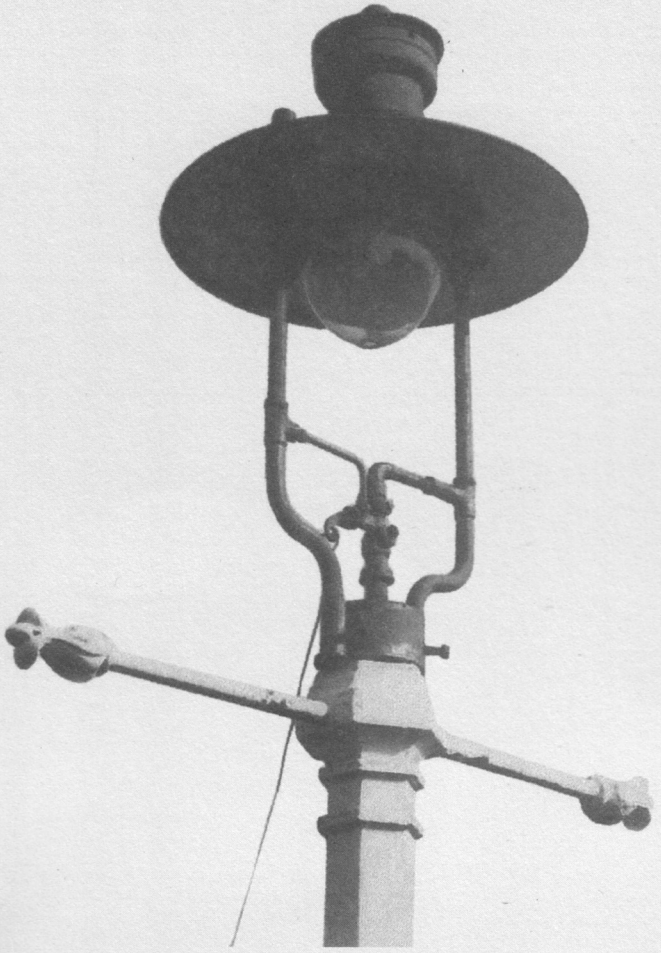


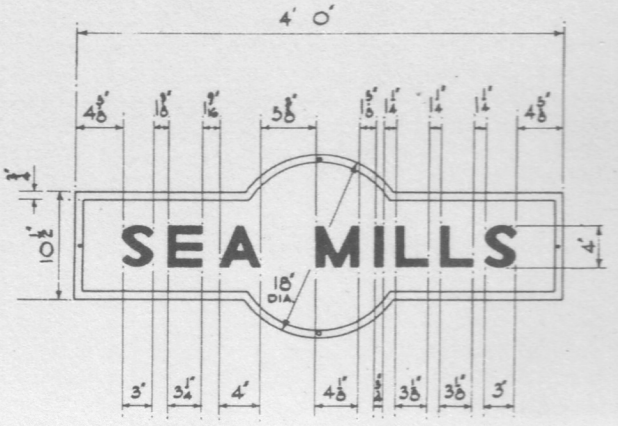
*In his letter reproduced on page 101, contributor Mike Christensen refers to these three pictures, taken at Bleasby, which show the 'throw-over' levers that operate the signals.*

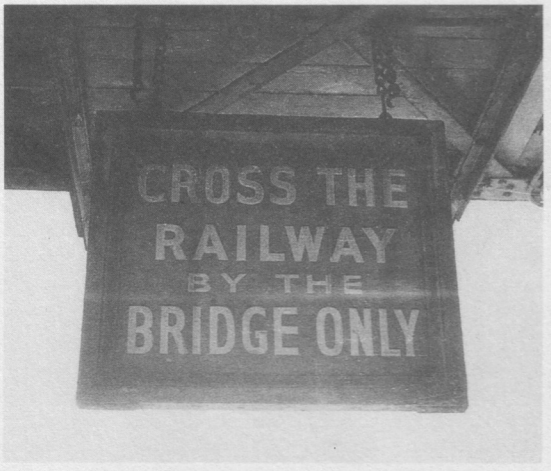
All COLIN BETTS

# LMS LINESIDE

## AN LMS JOURNAL HANDBOOK






PART ONE

**Stations, Crossing the Line, Station Lamps and Station Nameboards**

**V. R. ANDERSON & H. N. TWELLS**

Front cover: *Taken from the platform at Leicester, looking north towards Syston, this picture shows old No. 867 following renumbering in 1907 when the locomotive became No. 777. For a few years the Belpaires were the most powerful express passenger locomotives to run on the Midland. They were built as saturated engines, as seen here, but later the majority were rebuilt as superheated locomotives.*
Rear cover: *The wording on this Midland Railway notice is a little unusual. It was photographed on a railway underbridge (i.e. the railway was below the road) about ½ mile south of Alvechurch on the line between Barnt Green and Redditch on 28th March 1964.*

COLLECTION J. A. G. H. COLTAS and M. MENSING

# 06-6664 — General Arrangement Yard Shunting Engine Side Tank

| Heating Surface: | |
|---|---|
| Firebox | 58·25 Sq Ft |
| Tubes | 692·50 Sq Ft |
| Total | 750·75 Sq Ft |
| Grate Area | 10·5 Sq Ft |
| Tank Capacity | 450 Gallons |
| Coal | 10 Cwts |

Working Pressure 160 lbs per □
Two Valves 2½" diam.

*This is an exceptionally useful general arrangement drawing, showing as it does several details of the boiler and firebox construction, which I have not managed to find as a separate drawing. At the upper rear corner of the firebox are the triangular gusset stays and in front of them can be seen the sling stays attached to brackets either side of the manhole. The lower ends of the sling stays are pinned to the roof girders of the inner firebox. Near the lower edge of the girders are the row of through stays between firebox door-plate and front tubeplate and above them on the front ring are barrel stays from the tubeplate to brackets near the back of the ring. Details of the slide valve regulator and its spindle are also evident, the length of the latter showing why a small, circular hole in the back of the cab was necessary. The drawing is dated 3rd May 1906 and is initialled by J. E. Anderson, but it shows many features of the later, 1921 and 1922, engines — note the dished smokebox door with wide seating ring, commode-style cab handrails with pillars fixed to the cab sides, later-pattern rear footstep supports, and modified valve gear. Obviously, therefore, it has been altered to show the later modifications, but the fact has not been recorded. It is also noticeable that the buffer casings shown are early, short-pattern ones but that the packing pieces are only thin. This was the intended arrangement when the drawing was originally prepared in 1906, but the first five engines were actually built with 2¾in thick cast-iron blocks between the casings and the buffer beams. The later locomotives had packing as shown but with long casings.*

*This 1906 drawing shows the frames, platform angle, footsteps, etc. of the first five engines. Although, as far as I am aware, there were no alterations to the frames themselves on the 1921/1922 locomotives, the footstep supports were as shown in the general arrangement 06-6664. It is useful, therefore, that this one illustrates the earlier variety. The modified buffers with large, dished plates riveted on to standard heads are clearly illustrated. At some stage after the Grouping, the drawing was amended to show extended footsteps with turned-up ends, although the alteration was not recorded on the panel at bottom right. This amendment was made to many pre-Grouping drawings of locomotives that were absorbed by the LMS, very few of which were ever modified. As far as I am aware, no '1528' had such steps. The 'D' prefix to the drawing number was added after the Grouping and indicated a Derby drawing.*

| Detail Drawings | |
|---|---|
| Description | Dwg. No. |
| Driving axle box guides | 05-6403 |
| Leading do do | 05-6404 |
| Spring links and carriers | 05-6402 |
| Reversing shaft brackets | 05-6459 |
| Frame flanged plates | 05-6427 |
| Frame Stretchers | 05-6425 |
| Frame Angles | 06-6573 |
| Tank Supports | 05-6426 |
| Steam brake Cylinder | 15-6437 |
| Brake shaft Carriers | 19-3271 |
| Brake hanger Carriers | 05-6413 |
| Life guards | 06-6559 |
| Cylinders | 05-6393 |
| Sand boxes | 05-6428 |
| Buffers | 00-6754 |
| Slide bar bracket | 05-6451 |
| Lamp Irons (on Platform) | S-5740 |
| Cylinder Cladding | 06-6578 |
| | |
| | |

SECTION AA

SECTION BB

SECTION CC

SECTION DD

FOR PARTICULARS OF FOOTSTEPS SEE S-6451

ALL CORNERS TO BE ROUNDED TO A RADIUS WHICH, WHERE NOT DIMENSIONED, IS TO BE FROM ⅜" TO ½"